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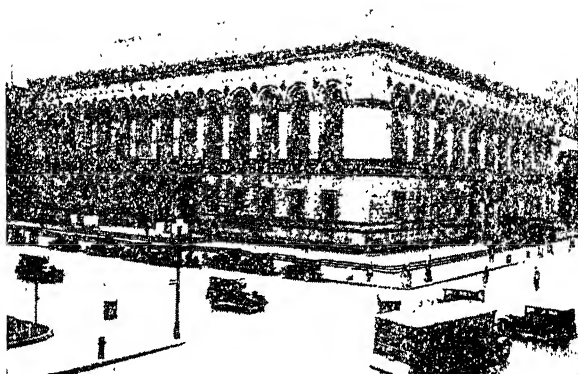
CLASSICS OF AMERICAN LIBRARIANSHIP

THE LIBRARY AND
ITS HOME

Classics of American Librarianship

Edited by ARTHUR E. BOSTWICK, Ph.D.

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and the Public Schools. By *Arthur
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BOSTON PUBLIC LIBRARY

Classics of American Librarianship

EDITED BY ARTHUR E. BOSTWICK, PH. D.

THE LIBRARY AND ITS HOME

REPRINTS OF ARTICLES AND ADDRESSES

SELECTED AND ANNOTATED BY
GERTRUDE GILBERT DRURY

Chief Instructor of the St. Louis Library School



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PREFACE

"Avoid everything that pertains to the plan and arrangement of the conventional library building," said W. F. Poole in 1879, and in 1881, the American Library Association in convention passed the following resolution:

"Resolved, That, in the opinion of this Association, the time has come for a radical modification of the prevailing typical style of library building, and the adoption of a style of construction better suited to economy and practical utility."

The "typical style of library building" represented a phase of library organization that was rapidly giving way to one of liberal, universal service. The new ideal of service demanded new habitations.

The attempts to heed this warning took American librarians into an entirely undeveloped field. The record shows chapters of inspiration and others of tragedy, but the ultimate success of the development of a new American library building was judged in 1915 by the architect, A. D. F. Hamlin, the professor of architecture at Columbia University, to be "one of the most highly developed types of buildings to be found in American architectural practice. . . Taken as a whole the libraries of the United States, large and small, represent American architecture well nigh at its best." Tho such very high praise is questioned by Mr. Yust in the *Library Journal*, November 15, 1930, he there summarized tendencies which show that tremendous constructive progress has taken place.

In this volume are brought together contemporary accounts of the distinctive elements in this movement, which has reached all types of libraries, but which show

the trends most clearly in public, college and university libraries, and which involve new forms of internal arrangement and fittings as well as the buildings themselves.

It is regretted that illustrations may not be used more extensively for often the story is found only in picture. Where possible illustrations and plans accompany the articles which are selected to represent what is typical and distinctive of progress in the field.

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AMERICAN LIBRARY BUILDINGS

Many of the problems which have faced library builders have been of general application to many classes of libraries. Prominent among these are the ever-present librarian-versus-architect controversy, the development of the "stack," and the relation of cost to service. These and other problems are discussed in the following articles.

WINN MEMORIAL LIBRARY, WOBURN, MASSACHUSETTS

One distinctive stage in American library architecture was that dominated by H. H. Richardson, well known already for other public buildings, when he designed the Winn Memorial Library, Woburn, Massachusetts, in 1877. This was followed in the same year by the Ames Memorial Library, North Easton, Massachusetts; Crane Memorial Public Library, Quincy, Massachusetts, 1880; Billings Library, University of Vermont, Burlington, 1883; Converse Memorial Public Library, Malden, Massachusetts, 1883. These five are the only authentic examples of his work in the library field according to the biography by Mrs. Schuyler Van Rensselaer, tho we see many libraries of that period which show his influence strongly.

The Howard Memorial Library in New Orleans, as explained in *Harper's Weekly*, October 13, 1888, was built from a Richardson design from the office of his successors, Shepley, Rutan and Coolidge, "not prepared with reference to this especial project." But others, not designed by him, such as the Hackley Library, Muskegon, Michigan, and the Cossitt Library, Memphis, Tennessee, emphasize the same Romanesque style with curved arches and towers.

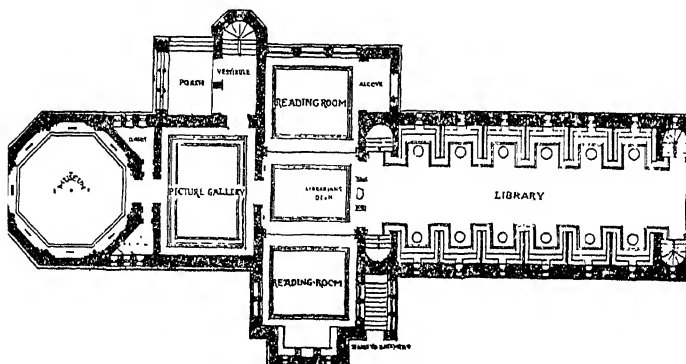
We have quoted from the biography a description of his first public library.

Mrs. Van Rensselaer, a New York art critic and author, is an honorary member of the American Institute of Architects and the American Society of Landscape Architects, and was awarded the gold medal of the American Academy of Arts and Letters in 1923 "for distinction in literature." Her writings include *English*

cathedrals, Six portraits, and History of the City of New York in the 17th century.

The Cheney Building in Hartford was the first, with the exception of a single dwelling-house, that Richardson designed after Trinity Church had been begun. It was commissioned three years later than Trinity, in September, 1875. It is a large commercial structure, built thruout of Longmeadow sandstone, which has variously arcaded stories, angle pavilions, only one of which rises above the cornice line, and much richness of detail. The scheme is conceived with less individuality than later schemes of a similar kind, and is rather awkwardly managed as regards one or two minor features. Yet it is a scheme which we instinctively judge as a whole and find vigorous, vital, and imposing; and in general its treatment is so skillful that we are tempted to forget how entirely novel at that time was the effort to adapt such a design to such a purpose.

We are likewise impelled to judge the Winn Memorial Library at Woburn, near Boston, commissioned in competition in March, 1877, by contrast not with the contemporary efforts of other hands, but with Richardson's own later works. The first of those public libraries for small towns which are so conspicuous among his best products, it is one of the largest and most complex, and is the most elaborate and picturesque. Its total length is one hundred and sixty-three feet. The main portion contains the reading room and book room with subordinate apartments above, and a picture gallery; the octagon is an art-museum.



The first impression the building produces is very powerful and delightful, and its florid picturesqueness has made it very popular with uncritical observers. But it can hardly be called so mature a work as even the Cheney Building. The octagon, tho thoroly pleasing in itself, does not group well with the gable, and is so separated from the library proper that the effect is of two buildings in contact rather than of one building of two parts. In the main portion the grouping lacks simplicity and breadth; there is no dominant center of interest, and the relationship between feature and feature seems fortuitous, not inevitable. The portal is not satisfactory and is hardly important enough to suit the character of the building, while the tower is too important and is not very felicitous on plan. And a simpler general scheme would have been more appropriate at Woburn. The intense surprise one feels on first coming upon this library thru the wide, quiet, grass-bordered streets and among the wooden houses of a small New England town is in part a measure of its beauty, but in part a measure of its unfitness to its place. With all its faults it is a superb building—a strong, fresh, and spontaneous if not a thoroly organic composition, delightfully elaborated in many of its parts. But when a building is superb in such a way that one's first thot is, What a pity it stands *here*, it is robbed of half its claim, not to admiration, perhaps, but to approbation.

One experiment, however, was enough to show Richardson his mistake. In the North Easton library, which was commissioned only six months later, the design is much simpler, soberer, and more organic. Except that there is no octagon, the main features are the same, but their grouping is vastly better. The entrance has due dignity, and its union with the gable gives a true center of interest. The tower is in good proportion with the lower masses and is well connected with them. The roof is admirably broad and simple. Richness is not excessive and is artistically concentrated upon a few features supported by dignified and quiet fields of wall.

The somewhat crude and over-bold treatment of wall-surfaces which marked much of Richardson's early work had by this time disappeared. But he had not degenerated into technical feebleness or monotony. An interesting surface, and one of a kind to suit the character of the special building he had in hand, was always a chief concern with him. Scale was

carefully considered in regulating the average size of the stones, and they were varied among themselves in size and shape with a keen feeling for that degree of difference which should mean animation without restlessness, breadth combined with vitality. The work of the mason was as important in Richardson's eyes as the work of the sculptor; and many a piece of plain wall was pulled down by his orders and rebuilt because the desired effect had in some particular been missed. The result justified and more than justified his care, tho perhaps few observers pause to appreciate how much it contributes to the general result which they admire.

The interior of the library, including the barrel-vault which covers the long stack-room, is finished in butternut, with delicate carved and turned decoration. Neither inside nor out is the building one of Richardson's very best; yet it approaches the best in excellence, and its entrance-porch is one of the most characteristic he designed.

CONSTRUCTION OF LIBRARY BUILDINGS

Tho Mr. Poole's fireproof, departmentally arranged building as described to the American Library Association was not generally accepted as practical, his criticism of prevailing styles of architecture stimulated libraries to experimentation and the exposition of his ideas tremendously influenced later library building. His own opportunity to work out the plans for the Newberry library in Chicago gave a valuable demonstration of departmental arrangement in an endowed reference library. Its feasibility even there has proved limited in extent.

A biographical sketch of Mr. Poole is found in Volume III of this series, *The Library and Society*.

The subject of library architecture came up for consideration at the last meeting of this Association in Boston by having our attention directed to the construction of larger buildings than we have had experience with, of which several will be built in this country during the next five years. There was no time for a thoro discussion, and it was, by common consent, agreed that the more deliberate consideration of the subject should be resumed at the Washington meeting.

In the course of my remarks on that occasion, in which I made some suggestions as to the construction of this class of buildings, I said: "I know of no better rule to be observed in the library architecture of the future than this: 'Avoid everything that pertains to the plan and construction of the conventional American library building.'" My present purpose is to explain and illustrate what I then could treat only in outline, and do some construction on my own account. I am convinced that the conventional style of library architecture is very faulty, and that we shall never have a general reform until better principles are applied to the construction of the largest buildings. The smaller libraries are constantly copying and perpetuating the confessed faults and worst features of the large libraries.

By the "conventional American library building" I mean the style of which the Boston Public Library, Boston Athenaeum, Astor Library, Cincinnati Public Library, Baltimore Peabody Institute, Congress Library, and others which I might mention, are the representative types. All these buildings have lofty rooms, and a large, open space surrounded with alcoves and galleries which are used for the storage of books. Altho these buildings have a variety of detail in other respects, this is the conventional style of which I speak. I might illustrate what I have to say by exhibiting the interior view of any one of them. I have selected, however, for this purpose, the latest, the best, and the most carefully planned of all these buildings,—that of the Peabody Institute, of Baltimore. Here some of the objectionable features of the older buildings have been avoided, and useful appliances and devices have been introduced. It is, however, with the general plan we are now concerned.

The main library hall, of which I show you a ground plan and an interior view, is 84 feet long, 70 feet wide, and 61 feet high. On the front is the reading-room, 72 x 36 feet, and in the rear a work-room, 38½ x 20 feet, and the librarian's room, 15 x 20 feet. The alcoves are six stories high; they project 18 feet from the walls, and there is a passage-way two feet wide next to the wall, for access between the alcoves, which are 12 feet apart. A skylight in the roof and two small windows in each alcove furnish ample light. The present shelving capacity of the room is 150,000 volumes. It is certainly a stately and imposing structure; and if we will banish from the mind all consideration of convenience, utility, and economy, and regard its architecture simply as an esthetic recreation, we may pronounce the picture before us beautiful. It is the nave and aisles of a Gothic church of the Middle Ages, with the classic associations of five centuries about it, brought down to the practical uses of a modern library structure.

There are some objections to this venerable and conventional arrangement, and I will mention:—

1. The wastefulness of space in this central portion of the building. Books are shelved only in the aisles; the nave is empty, and serves no other purpose than contributing to the architectural effect. Is not this an expensive luxury? Here is a solid block of vacuity, 84 feet long, 34 feet wide, and 61 feet

high,—more than half the capacity of the room,—which can be applied to no possible use in the storage of books. The floor can be used, and is used, in most of the libraries of this class, as a reading-room, and as a general promenade for tramps and sight-seers. It is unfit, however, as we shall presently see, for a reading-room; and the trustees of the Peabody Institute have had the good sense to provide another and suitable room for this purpose. The storage of books, therefore, is the only practical use to which this room is applied, and half its capacity is wasted in order to secure architectural effect.

2. The second objection I will mention is the difficulty and expense of heating such a room as this. In our northern climate fires are kept for six or seven months of the year, and, for four of these months, large fires. Hot air from a register or radiator rises to the ceiling like a balloon, and the upper strata become intensely heated before the lower stratum, in which we live, has a comfortable temperature. This arrangement is a wasteful expenditure of heat. In the Cincinnati Public Library the unequal distribution of heat is partially obviated by warming the marble floor, by means of steampipes beneath the floor, and drawing off the heated air of the upper galleries by ventilation, or cooling it in the lantern of the roof, which in winter serves as a refrigerator. This is done, however, at an enormous expense for fuel. The librarian informs me that 500 tons of coal are consumed in the library furnaces in an average season. He has sent to me tests of the temperature in different parts of the library which he made on December 29, when the thermometer outside indicated 3° below zero, and also on the evening of January 4, when 120 gas-lights were burning, which indicate that the temperature on both occasions was fairly equalized. Four years ago a friend of mine visited this library, and, observing the intense heat in the upper galleries, procured a thermometer and ascertained the temperature near the floor and in the upper gallery. Six feet from the floor it was 65°; and in the upper gallery, 124°. Mr. Dyer, librarian of the Mercantile Library of St. Louis, writes to me, under date of February 3, 1881, that the temperature of his library hall on that day, one foot above the floor, was 64°; 10 feet above, 74°; 19 feet above 82°,—indicating that the increase of heat was about one degree for every foot of elevation. He adds that, during the summer, the mercury, two feet below the ceiling, frequently reaches 140°.

3. I object, in the third place, to the shelving of books in galleries *under any circumstances*, and especially in this instance, where the alcoves are piled one upon another, six stories high. I may group my objections under three heads:

(a.) Because galleries are a wasteful expenditure of the physical strength of attendants in climbing stairs, and of the time of readers in waiting for their books.

(b.) Because the bindings of books in galleries perish from heat, and the higher the books are above the floor the more active is this destructive agency. Leather is an animal tissue, and will not, like linen, cotton, paper, and other vegetable substances, sustain, without injury, a higher temperature than we find agreeable to ourselves. Books cannot live where men cannot live. They are more nearly allied to us as cogeners than we are wont to suppose. In excessive heat the leather of bindings slowly consumes, and its life departs. If we put our friends in torment, they prove to us the doctrine of annihilation. Bindings perish from other causes, one of which is the presence of sulphuric acid in the leather. This acid is used in a process of the manufacture called "clearing," and, from haste or negligence, is not thoroly extracted before the leather is finished. The sulphurous residuum of gas combustion is also said to be injurious to bindings. The burning of gas, I have no doubt, is very injurious to bindings in libraries of this construction, and chiefly because it raises the temperature in the galleries. In libraries bindings have no such aggressive and destructive enemy as excessive heat. All the large libraries in this country and in Europe are lamenting its ravages, and often without a suspicion of the real cause of the deterioration. A well-known architect of Boston recently called upon me, and, conversing upon this subject, which was new to him, said that he frequently went into the galleries of the Boston Athenaeum to consult books, and when he came down found his clothes covered with a fine red powder. He asked if I knew what that powder was. I replied that I had often observed the same fact in the same locality, and I had no doubt that it was the *ashes* of the bindings which had been consumed by excessive heat.

Books should, therefore, be shelved in the coolest part of the room, where the air is never likely to be overheated,—which is near the floor, where we ourselves live and move. In the private libraries of our residences a mistake is often made in

carrying the shelving of our bookcases so high that they enter the upper and overheated stratum of air. If any one be skeptical on this point, let him test, by means of a step-ladder, the condition of the air near the ceiling of his common sitting-room, on a winter evening when the gas is burning freely. The heat is simply insufferable.

(c.) Besides the reasons already given, I object to the shelving of books in galleries, because it is unnecessary. The 150,000 volumes, the present capacity of the Peabody Institute hall, can all be shelved near the floor, where convenience in reaching them and their preservation require them to be. In order to exhibit this fact to the eye I ask your attention to this scale-drawing of the floor, with the bookcases so inserted. The folios and quartos will be shelved in wall cases extending around the room, and the royal octavos and smaller volumes in double cases, open on both sides, three feet apart, the side alleys being three and a half feet wide, and the central alleys four feet wide. Instead of having two alleys four feet wide, the better arrangement for this room would be to have a central alley five feet wide, which would give direct communication with the reading-room from the work-room and librarian's room. The cases will not be so high but that a person of average stature can reach any book without step or ladder.

The rule for estimating the shelving capacity of any room of considerable size, arranged in this manner, is to allow 25 volumes for each square foot of flooring. In this instance the capacity is 27 volumes per square foot, because the cases are longer than they are usually made. The shelving capacity of these cases is 160,050 volumes.

As I am to use further on, in some construction of my own, the estimate that each square foot of flooring will shelve 25 volumes, I will here explain how it is obtained. The double cases are 18 inches wide, and of any desired length, say 16 feet. The space which one case will require is a rectangle, of which the longer side is the length of the case plus the width of the alley (usually 4 feet), or 20 feet. The shorter side is the width of the case (18 inches), plus the distance between the cases (3 feet), or $4\frac{1}{2}$ feet. One case, therefore, requires 90 square feet of flooring. The area of shelving on one side of the case is $16 \times 7\frac{1}{2}$, or 120 square feet; on both sides, 240. The conservative rule which is usually adopted for estimating shelving capacity for

books of all sizes which go to make up a general library is ten volumes for each square foot of front area. The capacity of the case requiring 90 square feet of flooring is, therefore, 2,400 volumes; and one square foot will shelve 26.6 volumes. Twenty-five volumes, therefore, to the square foot is a reasonable estimate.

By reducing the width of the alleys from 4 to 3 feet, and the distance between the cases from 3 to $2\frac{1}{2}$ feet (in the stack-room of Harvard College library the distance is 2 feet 4 inches), the shelving capacity could be considerably increased. I have preferred to allow liberal spaces between the cases, and not to force the principle of contraction to its utmost limit. The estimate of 25 volumes to each square foot applied to large rooms brings out such enormous results as to be almost incredible.

We have now, in theory at least, shelved all the books which these six tiers of alcoves will contain upon the floor, and have space for 10,000 volumes more. We have, also, overhead, 61 feet of air and light, which is more than we need. Sixteen feet is better than 60, for it is enough. Three other floors, each of the same capacity, the rooms being 15 feet high in the clear, would fill the 61 feet and about 6 feet more. In the three upper stories the space which on the lower floor is appropriated to the work-room and the librarian's room could be used for book-cases, and would shelve 76,800 volumes. The entire storage capacity of the building would therefore be 717,000 volumes. This arrangement, when the library comes to need so much shelving space, would allow of a classification of its books into four grand divisions or departments of knowledge, each one of which would have a floor and reading-room to itself. The reader, then, by means of a modern elevator, would go directly to the floor on which the books in his own range of study are stored.

4. Returning to my general series of objections to the conventional style of library architecture, I mention, in the fourth place, the difficulty of getting about from one part of the library to another. Not to speak further of the burden of climbing stairs, it is necessary, in order to move from one gallery to another on the opposite side, to travel on the outer edge of a parallelogram, when the economies of locomotion require that we move as nearly as we can in straight lines, and from the

centre outwards. Observe the ease with which any case of books can be reached on this floor plan, and the difficulty in the conventional plan of passing from a lower alcove to one in a remote corner of the upper gallery. In a popular circulating library it is positively cruel to send attendants for books with such an arrangement for shelving as this; and to station them in the overheated and stifling air of galleries to answer calls for books is even more inhuman.

5. I object, in the fifth place, to this plan of construction, on account of its insecurity from fire. In an interior finished with wood, no arrangement could be more skilfully devised for favoring the destructive operations of fire than a series of alcoves piled one upon the other six stories high, with every facility for draft—unless it be a pile of empty packing cases. When a building of this kind takes fire the work of the insurance adjuster is very simple, for it is a total loss of the whole library. Water, heat, and smoke are as fatal to books as fire itself. Congress Library has twice been burned; Harvard College library once; so also the Chicago Historical Society's library, in what was thot to be a fireproof building; and the Birmingham Free Library, which several of us visited little more than three years ago, has since, with its great Shaksperian and Cervantes collections, been burned with fire, and nothing of its more valuable treasures saved. The class of library buildings which we are now considering will contain books, manuscripts, and public records of inestimable value which money cannot replace. To lose one of these libraries by fire would be a national calamity. After all that may be done in the way of external protection, there is still a large risk from internal accidents.

On a summer evening, a few years ago, a fire broke out in one of the rooms of the Cincinnati Public Library after the building had been closed for the night. It was fortunately discovered and extinguished before much damage was done. The origin of the fire was at first a mystery; but it soon appeared that the painters, who had been finishing the wood-work of the room, had left their oiled rags on the ledge of one of the bookcases when they quit work at night, and they had ignited by spontaneous combustion, and had set the bookcases on fire. The Birmingham Library was set on fire in the daytime by the lamp of a careless plumber who was thawing out the gas-pipes. A fire may start in a large library at any time

by accidents as unusual as these; and it were a shame if, from errors of construction, it be allowed to range thru the whole building. Hence, buildings such as we are considering should be constructed in a series of fireproof compartments, in order that the fire may be confined within narrow limits. I am not aware that this precaution ever has been taken. The principle, however, has been applied to the great ocean steamers, and many a ship has been saved by having its hull divided into several water-tight compartments. A practical method of securing this protection will be considered later in our investigation.

6. In all the libraries of this class in our country, except the Peabody Institute, the open space in the nave of our old Gothic church is used as a general reading-room; and in the Peabody Institute, where another reading-room has been provided, tables have been placed in front of each alcove, cutting off public access to them, at which students may study, if they choose.

There are several objections to the use of this open space for that purpose. It is too public and bustling a place for quiet study. Here the business of the library is done. Readers are applying to the custodians for books, and attendants are running about on the marble floor delivering their orders and taking new instructions. The emptiness overhead is appalling. Crowds of visitors and sight-seers are marching by, admiring the architecture, expressing their views on what they see, and asking each other, in audible tones, if they suppose the librarians have read all these books and know what they contain. One engaged in study hears remarks which were not intended for his ears, and sees sights which distract his attention. I said at our meeting in Boston: "It is like attempting to study in Scollay square, or on a mall of Boston Common." Those of you who have visited the reading-room of the British Museum will remember the strict precautions which are observed to secure perfect quietude in that sacred precinct. Applications for books are made in writing; and if it be necessary for readers to speak to the attendants, the conversation is in a tone so subdued that no reader can hear it. No person can enter the room unless it be for study, and he must show his ticket. The American librarians who, three years ago, were the guests of Mr. Garnett, the superintendent, were taken to an elevated position overlooking the floor, and the details of the arrangements were explained in whispers.

7. The seventh objection I will mention to this style of architecture is the difficulty of enlarging it. How is this building to be enlarged when the growth of the library demands an extension? Shall it be extended heavenward, and more galleries be piled on these, with more wasted space in the nave, greater difficulty of access to the books, and more extravagance in the heating? Shall transepts and a chancel be built, so that the plan will represent the true ecclesiastical cross? However pious these improvements, and gratifying to the taste of the refined architect, they are expensive, they involve demolishing much that has already been constructed, and they will give but little additional room. Why library architecture should have been yoked to ecclesiastical architecture, and the two have been made to walk down the ages *pari passu*, is not obvious, unless it be that librarians in the past needed this stimulus to their religious emotions. The present state of piety in the profession renders the union no longer necessary, and it is time that a bill was filed for a divorce. The same secular common-sense and the same adaptation of means to ends, which have built the modern grain-elevator and reaper are needed for the reform of library construction.

Any plan for library construction is faulty which does not foresee and provide for future enlargement. The Boston Public Library, with a building like this, has for ten years been struggling with the problem of enlargement, and has at last solved it by resolving to abandon the building and the site with all the ingenious devices and expensive improvements made upon the premises during the past quarter of a century. The last winter the City Council of Boston petitioned the Legislature of Massachusetts for the gift of a block of land in the Back-Bay District for the Public Library, and the petition was granted. Much trouble and expense had been saved if the hopeless and temporary schemes of enlargement, such as dividing the alcoves by double bookcases, had been abandoned years ago. There is probably no library building in the country which has been so much admired (by non-residents) as that of the Boston Library, and none whose worst features have been so generally copied by the smaller libraries. The Astor Library makes its enlargement by erecting another and similar building on an adjacent lot. Its third building is now in process of erection.

The trustees of the Peabody Institute have provided for the increase of its shelving capacity in the same manner as was done

in Boston, by dividing its alcoves with double cases. In anticipation of this change two small windows for each alcove were originally made in the sidewalls, which will light both sides of the double cases when they are built. It is obvious that this arrangement will be a blemish to the architectural effect of the interior. These many windows serve in winter, by their leakage and radiation, to reduce the excessive temperature of the upper galleries; but it is done at an enormous waste of heat.

8. My eighth objection to this sort of library construction is its great cost, compared with a simpler, less pretentious, and more convenient style. The enclosure of so large and high a room as this requires that the outer walls, the girders, and the roof, be of unusual weight and cost. The lantern or skylight in the roof, which ought to be wholly of iron and glass, is expensive. The structure, whose plan is before you, cost \$342,000, which includes the cost of two lecture-rooms beneath, and two art-rooms above. The Boston Public Library building cost \$325,000. The Cincinnati Public Library, with a capacity of 250,000 volumes, cost \$350,000. The two structures of the Astor Library, and the third not yet completed, all with a capacity of 300,000 volumes, will cost \$398,000. It is a practical question, allowing the plans of these buildings to be the best that can be devised, whether these are not too large sums to be expended for such limited accommodations. Is it not lavish upon the casket what ought to be spent on the jewels?

I will not detain you longer in discussing this part of my subject. I think I have said enough to justify the statement with which I started out, that "I know of no better rule to be observed in the library architecture of the future than this: 'Avoid everything that pertains to the plan and construction of the conventional American library building.'"

Up to this point I have freely passed judgment upon the plans and buildings of others. I am now to do some construction of my own. "It is easy," says the old proverb, "to criticise; it is not easy to construct." I have no pride of opinion that can be wounded by any strictures which may be made upon my plans. I offer them to be criticised. My only purpose is to secure better principles in our library architecture, and this can best be done by a free interchange of opinions held by practical librarians. I therefore cordially invite any librarian, architect, or other person present, whose building or plans I have criti-

cised, to take his full measure of revenge upon my work when I have concluded.

In the plans I now lay before you, I propose, on a lot of ground 200 feet square, the construction of a building for a reference library of 1,000,000 volumes; and in order that the library may grow, I expect, upon the same lot, without cramping the space for storage, or changing anything that has been constructed, to provide for 2,000,000, and later for 3,000,000, volumes. By doubling the size of the lot to 400 x 200 feet, 6,000,000 volumes can be provided for. It is proposed to erect no more of this building than is needed to meet present wants, and that additional compartments of similar construction shall be built from time to time as they are required. In devising this plan I have sought to secure the following results:—

1. That the building shall be constructed in compartments, and as nearly fireproof as is possible, so that if fire starts, it shall be confined in the compartment in which it originates, and the rest of the library be saved.

2. That waste room shall be reduced to a minimum; that convenience and utility shall never yield to architectural effect; and that the building shall be easily and economically heated.

3. That more spacious and convenient quarters than we now have shall be provided for the administrative department and the working rooms of the library.

4. That there shall be no climbing of stairs for books, and no overheating of bindings in galleries.

5. That greater facility of communication between different parts of the library shall be secured; and that the books shall be shelved near the floor, and no higher than they can be reached without step or ladder.

6. That quiet accommodations shall be provided for readers; that separate rooms be assigned to special subjects, and furnished with such special arrangements as they need for their storage and use.

7. That the cost of construction shall be kept within reasonable limits; and that convenience, utility, and economy shall be the controlling principles in the design.

I do not claim that my plan is the only one that will meet these requirements, but simply that it is one such plan; and, if it serves no other purpose, it may suggest a better design. It has at least the novelty, if not the merit, of being a radical departure from the beaten track.

mined by the space that can be well lighted by side windows, and that can be spanned by iron girders without pillars. Ten of these rooms are indicated on the plan before you, and, carrying the same construction four stories high, there will be 40 of these rooms in the whole structure. Each of the rooms will contain the books on some special subject, or in the early stage of growth, several related subjects. One room will be devoted to the Fine Arts, and will have the proper cases, tables, and other appliances for shelving and studying the large and expensive illustrated works which belong to such a collection. Another room will have the Mechanic Arts, with such other arrangements as are required. Another room will contain History, and, when the library has grown to a million volumes or more, perhaps American History only. Political Economy and Social Science will be found in another room, and so on thru the different classifications of knowledge. These rooms will have no alcoves nor galleries; for alcoves I regard as useless, and galleries an unpardonable nuisance. The books will be shelved in wall-cases and double cases not higher than a person can reach. The plan of shelving the books is the same which I have already described in speaking of the floor plan for the Peabody Institute. High light will be taken on the exterior side from windows above the wall-cases. Each room will have light from two sides, and will be furnished with tables, chairs, and all the conveniences for quiet study. The reading-desks will be on the inner side where there are no wall-cases, and hence the windows looking into the quadrangle will be of full length. The attendant in charge will have an opportunity to become acquainted with the books in his department, and competent to assist readers in their investigations.

There is, therefore, no occasion or need of a general reading-room, other than the one in which are kept the encyclopedias, dictionaries, and the general works of reference. Special dictionaries may be shelved with their own departments, and to some extent general works of reference may be duplicated. When it is necessary, books can be loaned from one department to another, as they are now sent to the reading-room. The building will be supplied with telephones and all the modern appliances for communication. As a general rule, readers will go to the room which contains the class of books which they wish to study.

As a protection from fire, each room used for the storage of books is cut off from every other room by a brick fire-wall extending thru the roof. The only access to these rooms will be by a light iron corridor at each story, seven feet wide, running around on the inside of the quadrangle, as indicated on the plan. In winter these corridors may be enclosed by glass windows, which can be removed in the summer. The long windows in the quadrangle will give abundant light, notwithstanding the small amount which will be intercepted by the corridors. Every floor will also be made thoroly fire-proof. They will be laid on rolled-iron beams, supported by lattice girders, the space between the beams being filled with porous terra-cotta; and the beams will be covered with concrete, upon which the flooring will be laid. The girders will also be protected by an ornamental covering of terra-cotta, which will serve as a decoration for the ceiling of the room below. Without such covering, iron, in case of fire, is the most treacherous of all building material. If by accident fire should start in any one of these forty rooms, it could not endanger the safety of the other thirty-nine.

This arrangement of access to the rooms by means of corridors serves another purpose besides being a protection from fire. It is a protection against tramps and sight-seers, who would be marching in crowds thru these wings if there were a passage way thru them, as in the Louvre at Paris. Such a passageway would take up a good deal of room, would interfere with the arrangements for shelving the books, and would disturb the quietude which is needed for study. It is a delusion to depend on iron doors between the rooms as a protection from fire; for, in such an emergency, iron doors are always found to have been left open.

In the rear of the central building will be an elevator, which will land readers upon the level of any of the corridors. As the central building will not be used for the storage of books, it will have stairways, besides the elevator, for reaching its several stories. In case of accident to the elevator, the stairways can be used for access to the upper corridors. On the rear side of the quadrangle there will be a stairway connecting the several corridors. If time allowed I might speak of other details of construction.

We will now consider the storage capacity of this building, and first of a single floor. Deducting the space covered by the

walls, there are 25,250 square feet of flooring in these wings. Deducting still further one-fifth of this space (or 5,050 feet) for the tables and other accommodations of readers, we have 20,200 feet which can be used for bookcases. By the rule we have already demonstrated, that each square foot will shelve 25 volumes, we have for the shelving capacity of this story 505,000 volumes, and of the four stories 2,020,000 volumes. The ceiling of the upper story is only 66 feet above the lower floor, and, if more space be needed, the walls may be carried two stories higher, which will give accommodations for another million volumes. The walls will then not be higher than many of the blocks in our commercial cities, which, by means of elevators, are used as business offices to their upper stories.

By extending the front wings 100 feet on each side, and carrying them back to the rear line, leaving an area 50 feet wide for light and ventilation, we have accommodations for 3,000,000 volumes more, or 6,000,000 on a lot of 400 x 200 feet. By extending this construction over a lot 400 x 450 feet, as in the plan before you, we have a capacity of 12,000,000 volumes.

It is desirable for many reasons that a large reference library should be surrounded by wide open space, and should be away from business centers. Such lots are not always available in a large city, and it is necessary to erect the building on a business block. A construction such as I have described is favorable for such a locality. A large number of volumes can be provided for on a lot of moderate size, and as a source of revenue the basement story could be used for business purposes. The building with its fire-proof construction would not be endangered in case one of the basement apartments should take fire. Whether it could live in such a furnace as the great Chicago fire is a question.

I have thus far considered only the wants of a reference library like the British Museum, the Astor Library, and the Peabody Institute. It may be necessary to provide also for a circulating department. One of these front rooms, which will shelve 67,500 volumes, may be used for this purpose. The circulating department may be located in the basement whose storage capacity has not been included in our previous estimates. There is a clear open space in the quadrangle, nearly 90 feet square, for which no provision has yet been made. A one-story structure, lighted from above and covering this space, will not interfere with the light of the reference department. It will

contain 120,000 books for circulation, with ample space for waiting- and delivery-rooms. Access to it might be had on the basement floor under the main entrance to the reference department.

One very important part of the subject remains to be considered, viz., the cost of the building. In this matter I have not ventured to trust my own judgment, and have relied wholly on the careful and detailed estimates of one of the most experienced and conservative architects in Chicago, Mr. William H. Willcox, who has built many large structures, and is now building the Statehouse at Lincoln, Nebraska, which will cost \$1,250,000. I have his estimates with me; and, as they are too long for me to read, I will only state the results.

The estimates are made on a building such as has been described, covering a lot 200 feet square, five stories high, including the basement, and having a capacity of shelving 2,000,000 volumes. The exterior will be of sandstone, in simple yet characteristic design. The building is to be absolutely fire-proof, with brick walls and iron beams, iron window frames and sashes, and steel inside blinds to all exterior windows. The interior iron-work will be covered with porous terracotta, or other fire-resisting material. The floors in the book-rooms will be of hard-wood, and in the vestibule and inside corridors of tiling. The walls of the same will be wainscoted in stone and tile. The cost of the building complete, including the steam apparatus for heating, but not including the shelving and furniture, will be \$530,000. The shelving, which will be of hard-wood, with the furniture, will cost \$110,000, making the entire cost of the building in readiness for occupation \$640,000. The cost of construction, on the basis of storage capacity, in the Boston Public Library, is \$1.30 per volume; in the Astor Library, \$1.33; in the Cincinnati Public Library, \$1.40; and in the Peabody Institute, \$2.00. In the plan I have laid before you, the cost of construction, estimated on the same basis, is 32 cents per volume.

ARCHITECTS AND LIBRARIANS: AN IRENICON

It seemed evident after the severe criticism expressed at the Catskill Conference of the American Library Association that no librarian would consider following Mr. Richardson's lead in library architecture longer. An editorial in the *Nation* was answered by Mr. Fletcher in *American Architect and Building News*. This clarified the atmosphere between architects and librarians, and is included because the constant struggle to break away from the conventional "library hall" is so well presented. It appeared also in *Library Journal* 13:338. November 1888.

A sketch of Mr. Fletcher will be found in Volume II of this series, *Library Work With Children*.

With the great increase of public libraries and the growth in public taste, the architecture of libraries becomes daily of more importance. It is much to be regretted that there should seem to be a sort of irrepressible conflict between librarians and architects, as indicated in your recent editorial, occasioned by the librarians' conference. As a librarian of perhaps a little more than ordinary experience with, and observation of library buildings of different styles, I feel inclined to attempt to explain this appearance of conflict and say a word for peace and cooperation.

In the first place, I would like to say that in my intercourse with architects I have always found them ready and eager to get the views of a librarian and quick to put them in practice as occasion served. Of course it is easy to say that architects, like other artists, are impractical and ready to sacrifice everything else to the esthetic demands of their art. But the architect is so constantly, from the first step in his career, put to the solution of the most practical problems, and required to deal so largely with questions of convenience and economy that such

a charge can hardly hold good. Certainly there is no reason why this unpracticalness, if it existed, should not interfere as much with success in the erection of a railroad station or a school-house as in that of a library. Nor would I admit that the failure of architects and librarians to agree is due to an uncommon development of "crankiness" in the members of our profession. Some of us are perhaps a trifle long-haired, with all that the word implies, but, mark you, it is not from this wing of our company that the sharpest criticism of the architect comes.

Where then shall we look for the reasons for this controversy? I will undertake to give a few and draw their moral. Not the least important is the one mentioned in your editorial—the disagreement among librarians themselves as to what is wanted in a library building. But while there is this disagreement and while some of our most heated discussions among ourselves are on this very point, there is now practically a consensus of opinion as to a few leading principles. And any one who cares to follow thru the volumes of the *Library Journal* the reports of our annual meetings cannot fail to perceive certain lines laid down with something approaching constantly nearer to unanimity. Among these indications are the abandonment of lofty interiors with fixed alcoves and galleries, and the substitution of iron stacks or portable wooden cases placed near together in plain rectangular interiors; the demand for abundance of light, preferably from the higher part of the walls, and not from the roof; the use of small tables and light chairs, instead of the large heavy tables and the artistic chairs, conformed to the style of the building but awkward in use, which have so commonly been put in reading rooms; the provision of ample, convenient and well-lighted work rooms for the librarian and assistants.

But if there is not much disagreement among librarians about these matters, there is a cause for the trouble which architects have in getting proper direction when they undertake to plan a library that seems to me responsible for more of the trouble than any other. It is this: libraries are generally built under the direction of a building committee, consisting of some members of a Board of Trustees, often dominated largely by the views of the donor of the building. It is very unusual to find a librarian of any experience either on such a building

committee, or, in any proper sense, consulted by it. A large share of all the new libraries are erected for incipient libraries, or for those which are not of sufficient importance to demand the services of an experienced librarian. These building committees are more apt to accept plans which present a tasteful and showy appearance and also conform to the style of some existing, and perhaps famous, library, than to make sufficient study of the matter to learn that a new era has fairly dawned in library building and to go by the best light of that new era. And in this state of things who can wonder if but few architects become fully aware of the new demands in this department of their profession?

I cannot forbear in this connection to refer to the honored name of Richardson, which is used quite freely in your editorial. I presume no librarian can be found who will fail to do justice to the excellence of the work of our greatest architect. But on the other hand, whatever disagreement there may be among us, I am equally satisfied that no librarian, who could be quoted as authority in the profession, would express approval of the main features of Mr. Richardson's library buildings in so far as the interior is concerned or affected—simply because Mr. Richardson's work in this line was very largely done under such circumstances as I have described. I have the best reason for believing that had he lived but a few years longer, he would have come to build libraries no less beautiful and appropriate in general effect than those he left, but better fitted to meet the wants of the modern public library. For while there may be more or less conflict between "art and use," in this department as elsewhere, I do not believe that any man of genius, alive to the real needs of such an institution, will fail in the attempt to meet those necessities, while still responding to the esthetic requirements peculiar to this class of work. Fortunately examples of success with this problem are multiplying, and many librarians are ready to point to their architects as friends, not "natural enemies."

ARCHITECTS AND LIBRARIANS

Without any knowledge of Mr. Fletcher's article just quoted, Norman S. Patton, an architect of Chicago, wrote the following articles which he read at the St. Louis conference the next year. He prefaced his presentation with an explanation in which he mentioned the "sure indication that when architects and librarians come to know each other they will work harmoniously in the development of the library buildings of the future."

Mr. Patton, who died in 1915, made a specialty of public buildings, designed many schools, colleges and public libraries in Chicago and elsewhere, and was a director of the American Institute of Architects. His firm were architects of the Hackley Library, Muskegon, Michigan, and of the Quincey, Illinois, Public Library, both built in 1889, and illustrated in *The Library Journal* of that year on page 25 and page 86, respectively.

I see that I am announced to read a paper on "Library Architecture," but I propose to speak rather of those who make library architecture—architects and librarians. What have architects to do with librarians? Why should librarians be interested in architects? It is these questions that I propose to answer. In general it is the architects that make architecture; and the interest which has been manifested by librarians in the architecture of the buildings in which they labor is a sufficient excuse for the introduction of this topic to your attention.

Few people who have not had experience in building for themselves have any accurate idea of what is done in an architect's office. The architect makes a picture of the outside of the building, and is mainly responsible for its good looks; so much is recognized by the public, who often look upon the architect as an artist, and, like other artists, as an impractical sort of a fellow, who makes a reputation for himself and a handsome house for his client at the expense of the latter in more ways than one.

This picture may be true in some instances, but is not a fair type of the profession as it stands today. There are people called "librarians" whose knowledge of books extends no farther than the taking from the shelf and putting back again. There are so-called "architects" whose knowledge of architecture is one-sided and deficient; but, in selecting a type of the profession, it is but fair to take the working of a first-class office.

Here we find that careful study has been given to the arrangement of rooms, halls, and stairs. That long before the exterior is designed, numerous sketches of the floor plans have been made from which to select the most convenient and economical. Calculations are made of the strength of beams and columns. The foundations are laid out with great care, so as to be proportioned to the weight upon them. The heating, lighting, and ventilation are studied as essential parts of the design. In fact, the whole building is built on paper to the minutest detail, and specifications are prepared which describe the work to be done with such accuracy, that when it is divided among a dozen contractors there is no interference between the various trades, nor is anything omitted.

The proper thickness of walls, the kind of cement to be used, the depth and width of the foundations, are decided by the architect and not by the mason. The size of timbers and methods of framing the roof trusses are not left to the discretion of the carpenter, but are calculated by the architect and prescribed by the drawings. If there are any mistakes in the *design*, they are likely to be copied in the *building*. If the contractor makes the building as good as the design calls for, he is doing all that is expected of him, and it would be a fatal optimism to count upon his improving upon the copy set him.

The whole construction, arrangement, and design of a building are thus almost entirely dependent upon the architect, who must be master, not only of his profession in general, but of the requirements in particular of each kind of structure he is called upon to erect.

But there is one thing that is not in the province of the architect to do: An architect is not, or at least should not be expected to furnish the *idea* for a building.

The planning of a building is in the nature of a problem to be solved. Certain conditions and requirements are laid down, and it is the duty of the architect to meet them; but

it is the business of the owner, and not of the architect, to decide upon these requirements.

An architect is employed by an owner to assist him in building a house or other structure. The owner says *what* he wishes done, and the architect decides *how* the owner's wishes are to be accomplished.

It is not so important that an architect shall have great originality as that he shall have a quick and delicate perception of the wants, the aspirations, and the limitations of his client. If I am planning a house for a gentleman of wealth I must be able, in imagination, to put myself in his place. For the time being I must be a gentleman of wealth, and appropriate the suggestions of my client as expressing my own wants, and arrange the house accordingly.

When the work is complete, I must check the correctness of my imagination by submitting the plans to my client. If I have read his character aright and developed his ideas properly, he is pleased. In like manner I must catch the particular wants and preferences of the other members of the household.

So with buildings of other kinds, the architect is supplied with certain definite conditions to fulfil. Those who are to occupy have, very properly, something to say about the provisions made for them. The architect builds for others, and he must satisfy their wants; and his skill lies in his appreciation of those wants, and the adaptation of the building to meet them.

Many structures are complex in their uses, and occupied by different classes of people. The architect must meet the requirements of all the occupants, or his work will not be a complete success.

It is not enough to provide for those who use the parlor, and forget the kitchen. This is the workshop of the house, and the comfort of the whole family is concerned in its proper arrangement.

It would be a singular mistake to plan a church and forget the convenience of the minister; and yet many a library has been planned, and apparently the librarian has been left out of the calculation.

Why should the latter omission be more common than the former? Because, in the first place, the minister is on hand when the plans are prepared, and his opinion is given great

weight; while, in the case of a library, frequently there is no librarian selected until after the building is completed.

If all the consultations for the building of a house should be held with the head of the family while his "better-half" is absent, there is great danger that the closets may be too few and too small, and that other domestic arrangements may not be quite in the line of feminine ideas. A library cannot be arranged properly unless the librarian has an important if not a controlling part.

There are two parties to be provided for in a library building—the public who patronize the institution and the administrators who procure and arrange the books and give them out. No library is perfect that does not provide for the convenience and comfort of both of these parties. In the old-style building the public was cared for, and the librarian and his assistants left to make the best they could out of the premises; and yet there are strong reasons why the librarian should receive the first and principal attention from the architect, for he spends his life in the library, and an extra step in reaching a book is multiplied many times a day, while on the part of the public there are few who have occasion to enter a library many days in the week, or to stay more than a few minutes at any one time.

Why is it that the librarians have had so little influence on library architecture, that so great an architect as Richardson should have gone on designing museums, and calling them libraries? In a museum the public does its own walking, and the shelves and cases may be arranged in alcoves or galleries, according to the fancy of the architect. There is a charm in wandering about and finding odd specimens in odd corners, and the burden of climbing stairs is sufficiently distributed not to be oppressive to any one. A college library, in which the students are allowed to take books from the shelves, may be arranged on the museum plan; but, in a public library, where all the books must be brought to one central desk, it is so evident that the convenience of the librarian is of the first importance that we naturally raise the question, Why has the librarian been so slow in asserting his rights?

The main reason has already been alluded to. He cannot assert himself when he is not there, and when he arrives it is too late. A gentleman of wealth makes a gift for a public

library in a town where none has existed before. There will be no library and no librarian until after the completion of the building. In some cases there is a small library, housed, perhaps, in a room that was built for a store or office, and the limited demands for books are easily met by an attendant whose opinions on the subject of library buildings would hardly be worth the asking. Some enterprising citizen starts a subscription, and then comes a new building, new books, and, to crown the achievement, a new librarian—a real librarian this time, a member of the A.L.A., who enters upon his work with enthusiasm, only to find that in the new building everybody's comfort has been provided for except his own.

Thus it happens that the librarians, singly, have often no chance to control the arrangement of the building which they are to occupy.

In recent years the librarians have combined to assert their rights in a manner to attract the notice of the public. My own attention was first called to library arrangement by reading an article by Mr. Poole, of Chicago; so that when—some five years ago—I received an unexpected order to make designs for a library, my first act was to hunt up that article, and then to follow up the subsequent literature on the subject. The discussions of this Association cannot fail to have a more and more powerful influence upon the architects who are called upon to plan library buildings. When it is seen that the librarians of the country are in substantial agreement upon the main points of arrangement, architects and committees will not dare to ignore their opinions.

A result of the increase of library building will be the development of library specialists among the architects. When an architect is employed who has such an acquaintance with librarians and their wants that he can see with their eyes, and present their view of the subject, then it will matter less whether a librarian be present or not when plans are prepared.

If any one is disappointed because I have not told how a library should be arranged, I can only reply that I came here to ask that question rather than to answer it.

I have started out to make a study of library buildings from a librarian's standpoint, and I hope to learn something from this convention. My own contribution to the subject is in the shape of the working drawings for the Hackley Public

Library, now building at Muskegon, Mich. The description of this building has already been published, and I will not take your time farther than to say that, in the arrangement of the plan, convenience of administration has been a ruling factor. It has been planned with special reference to the ideas advanced by members of this Association, and therefore it is a matter of no small interest to the designers to know how far the arrangement meets with your approval.

Altho the librarian has been given his proper position in the consideration of these plans, the architects have not forgotten the demands of the public. The interior of such a building must present a somewhat imposing effect, in order to gain the popular verdict. The book, reading, and delivery rooms are here given a proper degree of separation, and yet the public has an opportunity to see the books and have its appetite whetted by a glimpse at the amplitude of the collection.

The whole building being fireproof, there is no need of a solid wall between the book and delivery rooms, and therefore large arches have been introduced between the two to make a vista the entire length of the building.

With this much by way of preface, I commit the plans to the tender mercies of your criticism, with the assurance that whatever shortcomings you may find will be corrected "in our next."

POINTS OF AGREEMENT AMONG LIBRARIANS AS TO LIBRARY ARCHITECTURE

The attempt to do away with the "School of Show" in library architecture culminates in 1891 at San Francisco in this article by C. C. Soule, which is later referred to as clearing up the misunderstandings between librarians and architects. It also clarifies the minds of librarians as to the principles involved.

A sketch of Mr. Soule will be found in Volume III of this series, *The Library and Society*.

It has been stated that architects can get little help from librarians in planning libraries, because librarians do not agree as to what they want. This misapprehension probably arises from the fact that library literature, while it abounds in discussions of mooted points of construction, contains apparently no recent statement of elementary principles. To elucidate these principles some preliminary knowledge of the subject is required, and architects, asking advice without experience of their own, draw out and emphasize the striking differences of opinion, rather than the substantial agreements among librarians.

It is the purpose of this paper to state certain principles of construction, as to which those prominent American librarians who have had occasion to consider problems of building, appear to be unanimously agreed.

To librarians, most of these propositions will appear like truisms; but the necessity for formulating them appears in the fact that very few library buildings erected in this country during the last ten years conform to all, and some of them conform to none, of these axiomatic requirements.

Librarians are generally agreed as to the following fundamental principles of library architecture.

A library should be planned for library work.

The work of a library is (or should be) as definitely marked out as that of a school, or a hospital, or a factory; and the building to contain it should be planned with as much care, and as intelligent a regard to its proper functions.

Every library building should be planned especially for the kind of work to be done, and the community to be served.

Libraries differ widely in scope. The college library, the State library, the reference library, the circulating library, the professional library, the town library—while they have much in common—have different requirements as to rooms and arrangements; and libraries of the same class may differ as to probabilities of growth, conditions of equipment, and opportunities for usefulness.

The interior arrangement ought to be planned before the exterior is considered.

Within such necessary limitations as the size and shape of the lot and the amount of money available, the first consideration of librarian, building committee, and architect should be, not what exterior style, but what interior plan, is best for the library.

No convenience of arrangement should ever be sacrificed for mere architectural effect.

While the architect may suggest changes of plan which will improve the appearance of the building without sacrificing any point of usefulness, no essential conveniences for library work ought to be surrendered. It is far better that a library should be plain, or even ugly, than that it should be inconvenient. A steam-engine, superb in finish but faulty in construction, is properly condemned. A library is a literary engine requiring equally perfect construction to do economical and efficient work.

The plan should be adapted to probabilities and possibilities of growth and development.

In constructing a library building, it may be wise to build only for the needs of the present generation; but room and opportunity should always be allowed for future development. The community may grow, the library may increase beyond expectation, its methods may change, its sphere may enlarge,

or the progress of library science may develop improvements in administration, requiring changes and enlargement.

Simplicity of decoration is essential in the working-rooms and reading-rooms.

If money can be spared, the exterior of a library building, its approaches, entrances, and corridors, may be embellished to any extent; but the rooms intended for use, while they ought to be attractive in form and color, should be free from that showy decoration which attracts sight-seers to disturb the quiet and distract the attention of workers and readers.

A library should be planned with a view to economical administration.

No library can be so liberally endowed as to be beyond the need of economy, in time as well as in money. A well-planned library can be administered more smoothly and less expensively than one badly planned. In order to save money, expedite work, and insure prompt service to the public, the rooms of a library should be so arranged as to require as few attendants, as few steps, and as little labor as possible. The librarian's room should be near the centre of the system, within easy reach of the public on the one hand, and the working-rooms on the other.

The rooms for public use should be so arranged as to allow complete supervision with the fewest possible attendants.

The danger of mutilation or theft of books or periodicals is lessened, if every part of a reading-room is in plain view of the delivery clerk or of some other attendant.

There should be as much natural light as possible in all parts of the building.

No artificial light can be as healthy for attendants and for books, so agreeable to the eyes, or so economical, as daylight.

Windows should extend up to the ceiling, to light thoroly the upper part of every room.

With high windows, and walls and ceiling of a light color, the upper part of a room holds and diffuses daylight. With low windows it may be a cavern of gloom.

Windows in a book-room should be placed opposite the intervals between book-cases.

In planning a book-room or stack the book-cases ought to be located and the windows ought to be so arranged as to cast light, and not shadow, down all the aisles.

The arrangement of books in tiers of alcoves and galleries around a large hall (exemplified in the Public Libraries of Boston, Cincinnati, and Detroit) is considered entirely obsolete. The old style of shelving around the walls, in alcoves, and in galleries, has been generally superseded by the use of "floor-cases,"—that is, double book-cases arranged in parallel lines across the floor of a room,—or "stacks," which are tiers of floor-cases, one close above the other.

Shelves around the walls, and in alcoves, are still used in small libraries not likely to grow much; and in libraries where access to the books is unrestricted and space can be spared.

A form of shelving which is growing in favor, is an arrangement of floor-cases in large rooms, with space between the tops of the book-cases and the ceiling, for ventilation and the diffusion of light.

[This form of shelving is sometimes called a "one-story stack," but the term does not appear to be as appropriate as "floor-cases."]

There is considerable difference of opinion in regard to the "stack" method of shelving books. All librarians recognize the objections to the "stack," but most of them believe that economy of cost, room, and work requires its use to some extent in large libraries. Prominent librarians urge, on the other hand, that the inconveniences of the system are very great, and that, as a rule, its use should be avoided.

The plan for reference libraries so strongly advocated by Dr. Poole (classifying the books in departments and arranging them for storage and study in separate rooms, under one roof) has so far influenced library construction that modern library plans provide accommodations for readers near the books they want to use, whatever system of shelving is adopted.

In a circulating library the books most in use should be shelved in floor-cases close to the delivery desk.

In the floor-cases of a reference library the upper shelves should be narrower than those below, with a ledge about three feet from the floor.

This form of shelving leaves more elbow-room in passing, admits more light, and provides a temporary resting-place for books in use or in transit.

Three feet between floor-cases is ample for all purposes of administration.

No shelf, in any form of book-case, should be higher than a person of moderate height can reach without a step-ladder.

Shelving for folios and quartos should be provided in every book-room.

Straight flights are preferable to circular stairs.

Communication by speaking tubes and bells should be arranged between the working-rooms of a library.

So far, prominent librarians who have given special study to library construction appear to agree unanimously. Other points of general agreement—such for instance as objection to lofty halls for use as reading-rooms or delivery-rooms—have been omitted where any one could be found who doubted their universal application. On many such points librarians are approaching unanimity thru frank discussion and practical experiment.

If this paper serves a useful purpose, the writer may offer at some future conference a discussion of "Tendencies in Library Architecture," covering more fully and systematically the whole subject from the librarian's point of view.

REPORT ON LIBRARY ARCHITECTURE

Having come into agreement with architects, the librarians find they are not agreed among themselves as to the best method for choosing an architect for a particular building. Miss West (afterwards Mrs. Elmendorf) had opinions on three different methods, especially that of open competition, as reported in *The Library Journal*.

A sketch of Mrs. Elmendorf will be found in Volume III of this series, *The Library and Society*. She died September 4, 1932.

Instead of the usual annual report on library buildings, I have ventured to offer to the Association a paper somewhat elementary in character. It is founded on observations made while acting as secretary to the trustees of the Public Library and of the Public Museum of Milwaukee during a competition which decided the choice of an architect for their joint building.

It certainly is not necessary, before the American Library Association, to dwell on the fact that during the building of a library the whole function of the librarian is advisory; he is never the deciding power. Sometimes, indeed, his opinion is not once consulted; but most librarians believe that it is common sense that the executive officer of an institution should be an influential advisor.

Unless a librarian has taken pains, however, to make his knowledge of the subject in hand broader and more sound than that of any other person connected with the project, there is no real reason to expect or desire that he should be consulted. It should not be thot in the least disloyal to the craft to say that a very good librarian may yet have no great fitness for the task of planning a building. Little in his training and less in his daily life tends toward education in this direction.

Usually there is a long preliminary talk about a new building, and during this time of air-castle building the librarian is

able, has time at least, to put foundations under his knowledge of the subject. He has a chance to consider carefully, once more, the character of his library and its consequent policy, and from that to conclude the probable growth for which it is the part of wisdom to provide.

He will look far for a building wholly satisfactory even to those who built it, but by comparison of what exists in various places he may form a fairly trustworthy ideal toward which to work. He will learn almost as much from the failures of others as from their successes.

In all this study and that he has been making his advice worth asking, and certainly this is the surest course to cause it to be asked and followed. A librarian's opinion will often be consulted when it is not worth regarding; but an end soon comes to such asking, just as it should. Knowledge is power here as elsewhere.

Trustees usually face this problem of a library building as new to the task as the librarian; and, if he has been wise, with not half his preparation. Boards of trustees are usually made up of men each of whom has a life-work of his own. He has succeeded in this life-work because to it his time is given, and in it his attention centers. As a rule trustees do not, comparatively speaking, give much time or thought to the institution which they govern. It is not, and cannot be, expected that they should. They do wish, however, that the institution should be a distinct success; that it should be a recognized power in the community. This wish is rooted not alone in their interest in the institution, but also in a wholesome desire for public approval. A well-managed institution is the best proof of the wisdom of its trustees.

A librarian usually comes into office with the confidence of at least a majority of his board. If, as the months go by, they find him quietly equal to every emergency, if they find his policy steadily wise and trustworthy, he is likely to be given all the latitude which he can possibly desire. Such freedom ought not to be granted if these tests are not so fulfilled.

In library-building, the experience of others is the most available help to a wise policy. Under such circumstances that debt which every man owes to his profession demands that each one of us should frankly record the results of his own experience for the common good.

Former papers and reports on the subject of library architecture from some of the most revered members of the American Library Association give many sound principles and much practical suggestion.

In my own need I found little or no help on a difficulty which is met at the very threshold of the subject. Any discussion of the ways by which the architect may at first come into relation with the trustees and the librarian, has been almost wholly omitted. This is an important matter. The choice of an architect involves much more than the selection of that technical skill which produces good plans and a fine design. The well-being of the enterprise depends almost as much upon the character and integrity of the architect as upon his professional ability.

This choice of the architect is usually the first public step after the necessary funds are in hand or, at least, in sight. It is not possible to say what is abstractly the best course in all cases. It would have been useful to us to have had the fact placed clearly before us that there were not only different roads to our goal, but that there were in each road certain rocks and ruts. To change the metaphor, it is well to keep in mind that in avoiding Scylla it is also necessary not to fall into Charybdis.

A public library is usually a relatively large building in a town. Its erection is, therefore, a piece of work likely to be sought, or at least desired, by all the architects of the town. In case the town is a city the work will be sought too by architects of other places. How, from among these candidates, shall the architect be chosen? There are three common methods:

First. The board of trustees may select outright a man whom they have reason to believe competent and trustworthy and instruct him to prepare plans.

Second. The board of trustees may select a number of men, all of whom they believe to have the wished-for qualifications, and invite each of them to prepare plans in competition with one another.

Third. The board of trustees may inaugurate what is known as an open competition; *i.e.*, they may advertise in the public press and in the architectural journals that they are ready to receive plans for such and such a building. There are various possible modifications of the method, but it is, practically, a free-for-all.

It may as well be accepted from the outset that some criticism will be incurred by those having the enterprise in charge, whatever method of choice is adopted. "Public office is a public trust" and, in common with other trusts, is apt to be regarded with doubt by those on the outside. Under the first two methods, criticism is encountered from the first. Under the third it is usually deferred until a decision is reached; it does not thereby lose. I have yet to find record of the modern public building which has not in some way provoked criticism. It is certainly worth while to take every care to forestall just criticism. No other to be dreaded.

The first method, the choice of the architect outright, has much to commend it. It is by far the simplest, most direct solution of the problem. If honesty and intelligence go to the choice, perhaps the chances for mistake are not greater than by any other method. The individual man usually acts in this way when he has a building to erect and this is a fair argument for its practical good sense. When a man conducts his public duties on the lines upon which he does his private business, he is apt to be using the best sense that he has.

The glitter of a famous name is apt, under these circumstances, to attract the eyes which govern the choice. Unfortunately a famous name is not an unfailing mascot for success. The board of trustees, under this method, will have the ideas, suggestions and resources of but one man, or firm, to draw on. But on the other hand, this man will be able to go directly and hopefully at the problem, sure of the cordial cooperation of all concerned.

The plans first submitted by an architect so chosen will be sketch-plans, without working drawings or specifications for building. These sketch-plans are, of course, simply the architect's solution of the problem and are susceptible of modification to any extent that the desires of those concerned may indicate and the capacity of the architect work out.

If, however, the architect is unable to produce a satisfactory scheme, the experiment proves an expensive one. Even if his design is entirely rejected he has earned and can collect his fee. This fee is somewhat of the nature of a lawyer's retainer, and is usually reckoned as 1 per cent on the proposed cost of the building. If the plans are accepted this fee is merged in

the commission, which varies from 3 per cent to 7½ per cent on the cost of the building, according to the fame of the architect and the locality. The American Institute of Architects recognizes as just and right 5 per cent as a minimum charge for full services.

Almost all of the famous Richardson libraries, the Newberry library, and the beautiful and practical new Albright memorial building at Scranton, were designed by architects thus chosen.

The second method, the limited competition, gives an opportunity for a somewhat wider range of choice. Men eminent for their treatment of various styles of architecture may be chosen and thus a comparison of the relative adaptation of the style to the problem may be had. Each man knows his competitors and is thus spurred to do his best. In the selection of six competitors, which is a common number, the standing of all the men may be such that the enterprise will be safe in the hands of any one of them.

In this, as under the first method, the man with the very best ideas for the work in hand may be overlooked. But there is small chance that a real incompetent will be chosen. It is usual under this form of competition to offer a series of prizes, graduated in value according to the adjudged merit of the designs submitted. The value of the premiums is, of course, dependent upon the proposed cost of the building.

The architects of the Buffalo library, the Minneapolis public library and the new Chicago public library were chosen after this form of competition.

The third method, the free-for-all, is very common in the erection of public buildings of all sorts. It is eyed askance by architects. It is less than thirty years since the discussion of the subject of competitions was admitted to the professional papers. Some able men will not enter an open competition however fair the conditions may seem to be. There is probably reason for this feeling in the profession, for many of the scandals about public buildings have arisen under competitions of this kind.

And yet a revered and much-loved professor of architecture defended the custom by saying that few men had opportunity to design more than three or four great buildings, at most, in the course of their professional career. The open competition,

he said, gave the opportunity to attempt such designs under actual conditions, and whether successful or not the education of the attempt was secured.

Whatever may be the truth of the matter from the architect's point of view, the practice involves some serious considerations from the layman's side. In the first place, in order to attract competitors of a high order of talent the conditions must be favorable, must promise a reasonable degree of fairness. A competition which does not succeed in attracting such competitors is a dreary waste indeed.

If, however, the conditions are such as to be satisfactory, there will be submitted a great mass of mediocre drawings which are of no possible value to the enterprise. That is, if a large, well-baited net is spread, along with the big fishes will be gathered a great number of little, useless ones which add seriously to the weight of the net. A few figures will demonstrate clearly how considerable the burden of drawings in an open competition may prove. The design of a large building cannot be adequately set forth in less than eight drawings to the set. In many cases it is necessary to call for more. The drawings to be clear must be of large scale, making them awkward to handle. The Milwaukee competition, not a specially attractive one, contained seventy-four sets of plans. The reception, care, exhibition and return of five hundred and ninety-two drawings is not a task to be desired.

Still another consideration is that, for this style of competition, the architects are dependent for guidance upon a printed scheme called, usually, the "Instructions to Architects." The conditions of the competition and the needs of the building must be plainly set forth. In order to do this some one must have the scheme very clearly in mind. It may seem very easy to know what you want; it does not prove so easy to say it so that there is no chance for serious misunderstanding, by those whose only information is gained from a printed description.

Moreover, it is next to impossible to make a printed scheme which cannot be supplemented, to the great advantage of the enterprise, by word-of-mouth interviews between the architects and those to be served. The trained, perceptive minds of the architects see possibilities and difficulties of which the layman would never think. Practical alternatives can usually be arranged by discussion. To forego these discussions is a great

loss to the enterprise. On the other hand, however, if some competitors have this advantage and others do not, an inequality of conditions results, which justly enough makes dissatisfaction.

It must be faced, too, that it is not possible for any board of laymen, however honest and intelligent, to form a just judgment, architecturally, of a large number of plans. The layman thinks that he knows what he likes. What he likes may very possibly be as far as possible from bearing any relation to the real merits of the case. The question is not a matter of taste, it is a matter of knowledge. The layman is not versed in the laws which govern this realm.

The resource is to take the verdict of a professional expert; but here again there may be danger. An unprejudiced professional man will probably know nothing of the individual needs, or ideals, of the given institution. He may give the wisest possible judgment from the architectural point of view and yet leave out of consideration items of the utmost practical importance. One horn of the dilemma is not much more comfortable than the other. If the expert is so quick, so open-minded, so kindly-courteous as to be ready to hear and weigh with patience the comments of the librarian, the resulting judgment is likely to be a wise one.

There is one consoling fact which may be considered when in fear of the neglect of interior convenience for exterior beauty, or *vice versa*; an architect who is capable of working out a simple, convenient, symmetrical plan for the interior is usually able to clothe it in a reasonably effective and correct design.

The matter of expense is also to be considered under the open competition. The premiums, prizes, or price, of the best plans (the charters of some cities forbid the payment of prizes) are a part of the necessary attractiveness of the conditions. They are proportioned, as in the limited competition, to the magnitude of the building. An unwise economy in this direction defeats itself; the prizes must be adequate, or desirable competitors will not enter.

The expense does not end with the prizes, however. The advertising for plans; the printing of instructions, with the necessary plats, etc.; the reception, care, exhibition and return of the drawings; and the professional expert's fee form no incon-

siderable items. To these actual money outlays will be added a voluminous correspondence and innumerable interviews for the librarian; and interminable meetings, not to mention inexhaustible lobbying for the trustees.

Some modifications of the open competition might do much to obviate, or at least ameliorate, some of the most trying and dangerous conditions.

First. The board of trustees may select at the very outset an adviser in whom the architects of the country have confidence. The name of this adviser will form a part of the official advertisement. This first modification is by far the most important of all because nearly all the rest will come as natural suggestions from him.

A wise adviser not only ensures a just judgment of the plans in the end but gives the dignity of his name as a guaranty of the good faith of those having the enterprise in charge. The advertising of the fact of the willingness of a board to call such wisdom to their help will go far toward encouraging just the talent that is desired to enter the competition.

Many minor difficulties disappear at once by the help of his counsel. For example, a board of laymen will find it difficult to know just how to specify the drawings which are required to perfectly reveal the merits and defects of a design. Uniformity of size of drawings, of the point of view of perspectives, of the finish of drawings, greatly aid a just comparison of designs. All these things a thoughtful, experienced adviser makes perfectly plain.

Second. The competition should be absolutely anonymous. It is hard to be unbiased in judgment when the names, characters, and previous records of the architects are known. The professional adviser will find an easy way to obviate the only honest objections to this plan.

Third. The name and address of the person from whom any additional information or explanation may be had should be printed plainly in the advertisement. It might be wise for the committee to announce that no inquiries addressed to individual members of the committee would be answered.

Fourth. The *imperative* instructions to architects should be few. The general description of the accommodations required should be headed by a most explicit statement that the description is intended to be suggestive, not imperative. The really

imperative requirements should be grouped by themselves. With this understood the explanations may wisely be quite voluminous. All the benefit that the experience and ideals of the librarian can give may thus be brought to the help of the architect without crippling him unnecessarily.

Fifth. In cases where it is believed that certain arrangements are very desirable, or necessary, it is wise to give brief reasons. An able architect will see and often concede a practical point even when it conflicts with an effect which he would like to produce. Sometimes he will reach the same end by another course. The architect is anxious not only to make a fine building but one that is esteemed a practical success. It is immensely for his interest to so succeed, as well as for his pride and pleasure.

Finally it may be conceded that, as the open competition is still interesting and still popular, in spite of any and all objections, there are likely to be many more as time goes on. Under such circumstances it is wise to use every possible means to promote cordial relations between architects and librarians. If there is any lack of mutual appreciation the cause may be illustrated by a story told of Charles Lamb. Lamb said one day to a friend, "Oh! I hate So-and-So!" "Why, Charles," said his friend, "you don't know him!" "No, I don't," said Lamb, "that's why I hate him."

■

LIBRARY ARCHITECTURE

Mr. Sturgis discusses in the *Brochure series of architectural illustrations* the relation of interior arrangement to exterior significance, and sees in the "stack" the one element which makes library planning distinctive. This is an indication that the stack as a requisite of the modern type of library building has been accepted in the architectural field.

Russell Sturgis was born in Baltimore in 1836 and died in 1909. He was educated at the College of the City of New York and in Europe, and practiced the architect's profession till 1878, when because of ill health he retired and devoted himself largely to writing and lecturing. He edited art sections in Webster and Century dictionaries and contributed to several American encyclopedias and magazines, especially *Scribners*. He was the editor and chief author of the *Dictionary of architecture and building*.

Books are thot by many to form the most beautiful wall decoration which a room can receive. Not only to the lover of books are books delightful; their marshalled ranks, uniformed in morocco, dark brown, dark red, scarlet, green—in hog-skin, in vellum and in calf; prettily contrasting in color and harmonized by the free use of gold—this display, indeed, is one of the most comely things with which a wall surface can be adorned. Many a working library, however, is devoid of this charm. Mr. Darwin's workroom, with its piles of herbaria and *dossiers* lying flat on shelves with tags hanging out, and his books treated as "mere tools of his trade," torn in two when the volumes were too heavy—such a library, however noble and even awe-inspiring when the pervading spirit of the room has worked upon the beholder, is yet quite out of the line of decorative effect. But no one can be insensible to the

beauty of a well-ordered display of books, even when the workman is among his books and the shelves show many a gap where volumes are temporarily out of place and in active use. In like manner, in the great libraries of Europe: the long row of halls filled by "The King's Library" in the British Museum, is as charming to walk thru as the picture galleries of the Louvre. The Royal Library in the Hofburg, at Vienna, while richly adorned in an architectural way, is splendid, also, in its wall surfaces covered closely with well-bound volumes which tell a tale of ancient learning, and the library at St. Gallen is one of the most brilliantly successful pieces of decoration for a small and low public hall that has yet been devised. The books! They constitute the main feature of the scheme for the adornment of these ancient halls of learning.

Not that there has been neglect of the architectural features which, according to the ancient standard in such matters, should set off the books. The libraries we have named above, at Vienna and at St. Gallen, are famous instances of that. The Radcliffe Library at Oxford is more severely architectural than they, in that it reflects the severe Palladianism of England as against the excessive baroque of the German interiors; and the magnificent carved wood fittings of certain rooms of the National Library in Paris are worthy of the most careful study by those who wish to adorn the richer interiors of our own time.

The interior of the Vatican Library, that is to say of those rooms which constitute "the gallery" or the Library of Sixtus V, is decorated with the most superb inlaying of its cases and painting of its vaults. The splendid library at Grenoble, lighted by a system of domes resting on pendentifs, has a decoration partly of books and partly of architectural treatment.

The modern library, however, when it is of any pretensions to size and system, disregards both these means of adornment. Neither the books nor yet the architectural fitting up of book-rooms are now in place. More scientific consideration of the problem has relegated the books to fireproof warehouses where they, the books, may be arranged as systematically as may be desired and without any loss of space; where the passages are narrow and are visited by the attendants of the library alone; where height from floor to floor—that is to say, between galleries—is only such as allows the attendant to reach every shelf

without leaving his stand upon the floor; where, in short, the books are stacked literally, and where the names "stack" and "stackroom" accurately describe the placing of the volumes of which the library is composed. Special volumes may, indeed, be required for exhibition. A painted miniature, a rare plate, a rich binding, may all need to be shown to the public, and for that purpose to be put under glass exactly as any other precious work of art of small size would be prepared for exhibition. But these are separated from their fellows and do not share in the general storage of the library, the books of which are there for easy access and rapid delivery to persons requiring them, and not for show at all.

The modern library, then, consists of a stackroom, which is a mere place of storage with convenient access to every corner and every remotest shelf; and of rooms for other purposes than storage, which are rooms in no way remarkable in themselves or distinct from the rooms of other public buildings. The exterior of the stackroom lends itself, indeed, to very unusual architectural treatment and of this, anon. The exterior of the other parts of the building does not differ really from the exterior of a city hall or a State house of size comparable to that of the library itself. The reading room for the general public is, perhaps, the largest necessary room. Special reading rooms come next—that is to say, the rooms in which certain particular lines of study may be more quietly pursued than in the larger room. There is also, perhaps, a delivery room, where books which are allowed to be taken away from the building are delivered to applicants, and the same room serves for the return of books brought back. These are the rooms which would naturally be treated in a dignified way, with high ceilings and with large windows for the free admission of light, at once, and for stately effect also, both within and without. These rooms naturally fill the more important stories, and their windows occupy the more important part of the exterior fenestration. Packing-rooms, bindery-rooms, rooms for the catalogers, are numerous according to the size of the library, but the public has no need of access to them, and it seems inevitable that they should occupy basement or attic stories, or should front on a court: it being always provided that they have abundant light for the necessary carrying on of the continuous, day-long work which a large library requires. If, indeed, a library has among

its treasures, books, prints and maps which should be displayed as works of art, separate rooms for this purpose may well be added, and the library becomes, in part at least, a museum of art. The distinction is not well maintained, and cannot be, in small libraries, where, indeed, the reading room must serve also as a place of exhibition; but a large library should have the rooms for exhibition specially set apart for that purpose, because of the great annoyance to students caused by the coming and going of sight-seeing visitors.

As the illustrations of this number are chiefly views of exteriors, we are brought now to the consideration of what are the exterior effects natural to, and proper for, a large library, but it appears that no one of our illustrations shows the exterior of a stackroom. This part of the library building, its very center and reason for being, has been better treated, perhaps, in the Congressional Library at Washington, than anywhere else. At least, no other instance comes to mind where so intelligent an arrangement of the lighting has been made. It is easy to put your books in the basement and to give them nothing but electric light, but that is not to face the difficulty or to solve the problem. If it be assumed that daylight is, on the whole, better and more wholesome, as it is certainly cheaper than electric light, then a well windowed stackroom is better than a dark one. The stackrooms at Washington, are, indeed, left in the interior, and the light comes to them from courts, from which alone their outer walls can be seen; but the treatment of these has been shown in this instance to be so easily made architectural that it is quite within possibility that a future great library will show the stackrooms as a part of its adorned exterior. As for the other rooms of the library, they can be put off with no characteristic treatment at all, as in the great National Library at Paris, or they can be treated without significance, with two long rows of round arched windows, as in the Royal Library at Munich. Or they can be gathered round a great rotunda and help buttress its dome, as in the Library of Columbia University,—that is to say, they can be treated in a wholly abstract way. The Library of St. Geneviève, at Paris, was especially arranged to show its books in the interior of a great hall, and the system of small windows below and large windows above was especially arranged for this; the large windows opening into the great hall above its wall of books. It has, however, been found perfectly feasible to apply this exterior, with but the slightest modi-

fications, to the exterior of the public library at Boston, which has in its interior no approach whatever to the dispositions and arrangements of the Paris institution. This example seems to show how devoid of characteristic features the exterior of a library may be. The great library of the British Museum has no architectural exterior at all, as it is lost in the mass of buildings whose only face toward the world is the well known colonnade, which has neither beginning nor end, nor relation to the structure it adorns. The Royal Library at Stuttgart and the Ducal Library at Wolfenbüttel have agreeably disposed exteriors in the modern classic taste, the former being especially fortunate in the immense amount of light given to its interior. The same characteristic, that of abundant light, is found in the new public library at Chicago, but this characteristic, that of having abundant daylight furnished to their interiors, should be the characteristic of every public building, and no one of the structures last above named, can be said to differ in any way from what a building for public offices would be.

The purpose of these remarks is to point out that as yet no special characteristic of a library exterior can be said to exist. You provide large rooms and small rooms, you arrange them according to the best judgment of the director and the architect for convenience of daylight work; you open windows where they are most needed, and you compose such an exterior as seems to result from the circumstances of the case, but it would be a very exalted and very mystical sense of inner fitness in the design which would attempt to discriminate between the outside of the modern library and the outside of a public building of totally different purposes.

All except the stackroom! That, indeed, may be as refreshing a problem for the hard-witted architect to struggle with as he is liable to meet with in the busy modern world. If a great library building should ever be planned with strict regard to utility—that is to say, with strict regard to common sense—it may well be that the reading rooms will be within and shut off from every noise, as the reading rooms of the great libraries in London and in Paris are. If, then, the stackrooms should be arranged along the exterior, enclosing the courts which give light to the reading rooms within, a really interesting problem of designing would be given the architect, and then, indeed, the library would grow to have an architectural physiognomy of its own.

PLANNING AND CONSTRUCTION OF LIBRARY BUILDINGS

Tho based largely on experience with large libraries the principles here expounded are so sound and forward looking that they have universal significance. This paper was read before a joint library meeting at Washington, D.C., March 29, 1900.

Bernard Richardson Green was supervising engineer for the construction of the Library of Congress building, and in complete charge after the death of General Casey. He invented the book stack and carrying system installed there and was characterized by W. W. Bishop as a "shrewd Yankee and a competent engineer." Educated at the Lawrence Scientific School, Harvard, he first became associated with the government in the construction of sea coast fortifications. Later he went to Washington as construction engineer for the State, War and Navy building, and there completed fifty years of service for the government, which included the completion of the Washington monument and the erection of the Public Library. After the completion of the Library of Congress in 1897, he was superintendent of the building and grounds until his death in 1914.

Remarks before librarians on the planning and construction of library buildings need little historical preface and yet few of the younger members of the profession, whose experience has been gathered in the buildings and with the appliances of the last half generation, probably realize the advancement made in this important branch of library economy during the last whole generation.

In the older days libraries were few, small and far apart in everything of common interest. Even their functions were very diverse and each occupied a field largely the creation of

the local librarian and environment, whilst he, on a meager salary, travelling rarely or not at all, often became an inveterate reader if not a recluse. Mutual intercourse being limited, no consensus of opinion existed as to library purpose and management, much less as to the planning of library buildings. Ill qualified therefore to impress the essentials of library economy and administration on the mind of the architect, librarians were usually content to get any building at all that he, uninformed and unappreciative, might happen to design in total disregard of the true purpose. Numberless disappointments and too many total failures were the natural consequence, and so library literature contains more of condemnation than commendation of architects as designers of library buildings. Much of this, however, has been a mistake, for why should even the architect possess so much more knowledge of the true plan for an important new library building than those who are to use it? The latter should present clearly the needs, and these will be quickly comprehended by the competent and studious architect whose business it will then be skillfully to plan and incorporate the indispensable conditions in a harmonious and appropriate architectural design. To accomplish this, some giving and taking here and there, within reasonable limits, will generally be necessary. A minor convenience or pet notion may have to be sacrificed at one point or another and, in general, the maximum of imagined perfection must be discounted a little if a homogeneous and creditable architectural structure is to be produced. To meet the many utilitarian and structural requirements—not to mention the artistic, which have been too much derided by librarians—involved in planning an important library building, a high order of talent and ingenuity are demanded, for the undertaking is more difficult than has been supposed.

But the conditions and means of library designing have, happily, greatly improved in recent years, altho notable examples of the expenditure of more money than wisdom in this direction are found in very modern history.

Librarians are now associated and have a literature of their own, accessible not only to themselves but to the architect and builder. General principles are better understood and agreed to all around.

It is hardly beyond the memory of many of us, when books were comparatively few, magazines, periodicals and newspapers

small and scarce, maps and prints rarities hardly known at all in the smaller libraries, while manuscripts were scattered amongst private owners and music was chiefly a private luxury not looked for in a library. Consequently the building was often a simple house in which shelves for only bound books were arranged about a reading room on some cloistered architectural plan, wherein the librarian at his desk appeared to be forever engaged in reading the library thru. The aspect of the place was scarcely enticing, and diffident persons, especially the young, passed it by in awe and doubt. The buildings, rarely of attractive exterior, were seldom well lighted or ventilated, while the scholarly mysterious dimness of the reading room became gloomy darkness in the inner shelf recesses where the dust and webs of time gathered with impunity and rested permanently. The shelves were usually of solid wood in close cases, unventilated and especially contrived to hold and hide indefinitely whatever got into them, especially dust, litter, and musty odors. Then the library comprised but little else than bound books and pamphlets which were well accommodated on the ordinary book shelf. A quantity of common shelving and a few tables, chairs and desks completed the necessary furniture. Occasionally a show case or two contained some rare volumes or manuscripts, and a few maps or prints hung on the walls.

Within the years of the youngest of us, all this has changed. Books have increased and multiplied almost beyond comprehension both in number and diversity, requiring much finer classification. Periodical and newspaper literature may yet perhaps swamp the world in print. The earth and the heavens are being traversed and surveyed extensively and the growth and value of maps and charts has already become voluminous. One has simply to visit the Copyright Division in the Library of Congress to find bewildering evidence of even the substantial publications of this country alone. Manuscripts are being collected and extensively studied and collated, requiring accommodations in safe, specially designed cases, while prints and the graphic art of illustration—a legitimate accession to the library—have kept pace with and become an invaluable adjunct of the printed book. Even the public catalog must have large and special accommodations. To provide not only the rooms but the special furniture and fittings for the safe and convenient keeping and the use of this vast and varied mass of new matter, is now a

live question and adds greatly to the problem of planning the buildings. In large reference libraries the rapid increase in the bulk of the accessions is not the least of the considerations.

Thus has come the demand for more accommodations and better arranged library buildings, and the subject has been extensively discussed until now, not to mention public halls or corridors, the schedule of the chief spaces required in a complete public library are:

- A stack room
- A general delivery room
- A general reading room
- Several private reading rooms
- Periodical and newspaper reading rooms in one or separate
- Open-shelf room or rooms
- Space for the public catalog
- Children's reading room
- Order and accession room or rooms
- Cataloging room
- Librarian's room
- Librarian's reception room
- Trustee's room
- Map and chart room
- Manuscript room
- Reading room for the blind
- Exhibition halls
- Print rooms
- Music room
- Lecture or class room
- Staff room
- Rooms for typewriter copyists
- Packing, receiving and shipping room
- Substation delivery room
- Photographing attic
- Printing and binding rooms
- Telephone closets
- Cloak room
- Women's room
- Lavatories, public and private
- Lunch room
- Stock room

Storage space in basement
Repair shop
Rooms for engineer, janitor and scrubwomen
Bicycle hall

The dissimilar conditions surrounding each new and differently located building, together with the various objects of libraries, make the problem of arranging all or any large part of these rooms ever new and difficult.

Obviously I shall not undertake to show how a building should be planned, but certain fundamental principles may, of course, be laid down. Small town libraries may be quite alike, as are the school houses generally, because their object and management are now very similar, and a stock plan for them would be quite practicable. In fact, the manufacturers of library outfit and supplies are so extending their business that we may soon have the opportunity to purchase, per catalog, at a special discount for cash, a complete little library building fully equipped and ready for use. But the great demand of the time for suitable buildings finds a responsive market with materials, machinery and advanced methods of construction undreamed of a few years since. The new Public Library of New York City will include all of the apartments above enumerated and several more besides, with all necessary halls, corridors, intercommunication and machinery. It will occupy, as every such building should, a spacious lot of ground where it will stand complete in itself, entirely detached from other buildings and with unobstructed daylight and air on all sides. Even there the problem of making a convenient arrangement has been difficult enough, but when, as it often happens, the lot is enclosed in a block or on a corner, the case is much worse and extraordinary treatment of the plan must be resorted to. Then more mechanical accessories and more artificial light and ventilation must be adopted; but the means of doing this acceptably are at hand.

Working libraries have become so comprehensive and indispensable that the planning of their buildings is a new branch of architecture of a high order, and no architect will succeed who neglects to study conscientiously the main principles of library science and convenience. It is his business to embody these in good architecture, and he has already done it well in some instances, but we are still struggling too much with designs

that are beautiful at the expense of well arranged, well lighted and ventilated interiors, and cramped spaces which an earnest restudy of the design would overcome.

In very general terms it may be stated that a working library consists fundamentally of a collection of books and a number of readers, the object being to secure the most intimate practicable connection between them and at the same time preserve the books and their classification. While in these days special mechanical devices may render very unusual arrangements practicable, they should be adopted only as a necessity; but it is a comfort to feel that the range of possibility has been so much widened. For instance: while we lay down the rule that the books should be shelved as near as possible to the readers, as a saving of time and labor, it is quite feasible, if absolutely necessary, to secure excellent service if the shelving be located in a very remote part of the building, or even across the street in a separate building. Modern mechanical resources are quite equal to the annihilation of mere distance in any direction or by almost any route. Communication, oral and written, and transportation of the books or even the readers themselves, or of library matter of any kind in almost no time, are practical mechanical possibilities at the present time. The problem needs but to be distinctly stated to be met by an affirmative from the engineer.

Thus it further appears that, by intelligent, thoro consultation with the architect and engineer, a library may be conveniently arranged and equipped and beautifully built on very novel and peculiar lines when unusual conditions are presented. The very magnitude of the Library of Congress was a condition of very large spaces and long distances, altho contained in a single building on an isolated site. The diameter of the main reading-room and the sizes and heights of the book-stacks suggested mechanical aids, and they were devised. The chief of these was a continuous and constantly running automatic book carrier. Another, operating on a different principle with an endless cable, runs underground from beneath the floor of the delivery desk to the Capitol, a quarter of a mile away. These have been in constant and satisfactory use for two and a half years. Pneumatic tubes for readers' cards and written messages parallel these carriers and an electric telephone communicates with the Capitol. Electric signals are also a part of the appa-

ratus, and convenient elevators for passengers and freight are provided in the book-stacks. Altogether the service at these long distances is perhaps quite as quick as could be desired. A book from the shelf is delivered to the reader within four minutes after handing in his card at the delivery desk, and to the Capitol within twelve minutes after sending over the call either by pneumatic tube or telephone. This is doing well for machinery that was necessarily absolutely original and novel at the time it was devised. When the demand shall be larger the machinery for such library service will be improved and diversified to meet it.

The cost of machinery is, however, a consideration both in construction and operation, and it occupies space. As already said, therefore, it is to be regarded as a resource available for large and well-endowed libraries and not always a necessary adjunct to those of moderate dimensions and means.

It is generally agreed that, above all things, the bound books, which comprise the bulk of the collection, should be shelved as compactly as possible, and that the mass of the readers, whom it is impracticable to admit to the shelves, should have reading accommodations as near thereto as possible, so as to minimize the labor and time of serving them with the books. This has been done in several different ways, depending partly on the size and character of the library; but the principal plans are, in general, first, to place the reading-room within the mass of books on a so-called central plan with the shelving surrounding or radiating from it, as in the British Museum and the Library of Congress; second, to place the books at one side adjoining as nearly as possible the reading-room (a very common method); and third, placing the reading-room on top of the stack. The first two ordinarily admit of extension of the stack, and the latter will do so if a side is capable of extension laterally.

The celebrated librarian, Justin Winsor, who was a prolific thinker on the mechanical lines of library economics, used as an illustration of his conception of a convenient and economical library, the old Providence Railroad depot, later known as the Park square station in Boston. Like most modern terminal stations this one consisted of a so-called head house and train shed. The former was of several stories with a great passenger hall and the usual waiting rooms, etc., while the train

shed was a simple great lofty barn extending out over the tracks and capable of indefinite further extension. Mr. Winsor's idea was that, if the train shed were filled with a book-stack, a delivery counter placed at the junction with the head house, and the readers seated at tables in the great passenger hall, very few other conveniences would have to be added to make a complete working library of millions of volumes. To facilitate the conveyance of books between the shelving and reading-room, a wide, endless band of canvas, whereon the books would ride, could be made to run at an inclination from the delivery counter.

It has been assumed that all the books should be shelved in one collection and the readers accommodated in one large room. This is conceded to be most economical, and nearly all libraries are now planned on this line. Quite the opposite scheme was energetically advocated some years since by no less prominent a librarian than the late Dr. Poole. Bitter, but just, complaint had been made of the evils of high shelving, requiring steps or even ladders, and of all arrangements of shelving in tiers or stories, especially those of more than two or three tiers. The fatiguing and time-consuming labor of fetching and returning books, excessive heat in the upper parts from the roof and artificial sources, desiccating and shrivelling bindings and paper, and the carrying upward of dust amongst the books, peculiar to the older high shelving systems, were ever present annoyances to the librarian who had to deal with them. And so Dr. Poole and a few followers, anticipating no possibility of overcoming the faults of the stack system without abolishing it altogether, strenuously opposed everything like it. He believed that the shelving should be distributed amongst many separate and distinct rooms, each a little library in itself devoted to one class of literature, arranged on low shelves within reach from the floor at the sides of the room in which the readers should be provided with tables and chairs. Thus there would be at least as many rooms as classes into which the library might be divided. High and storied shelving was also considered dangerous from the possibility of fire running upward.

But such a plan as Dr. Poole's would be expensive in construction, maintenance and administration. The Newberry Library in Chicago, of which he was librarian, was, however, built just before his death on a somewhat similar plan. The strength of his opposition to stacks was shown in his criticism of the plan of the new Library of Congress when under consideration

in 1882. He said, "the arrangement for storing the books is the worst that could be devised. The alcoves are carried five stories high, one story higher than in the present Congress Library. The books are made inaccessible, and the bindings in the galleries will perish from heat." In the building as constructed, however, the stacks are nine tiers high instead of five, while the conditions as to heat, ventilation, and accessibility have been easily made quite unobjectionable, and another time could be even further improved. The heat is never excessive except in summer, when it pervades everything in this latitude except the refrigerator, but it is perfectly counteracted by good ventilation and general cleanliness, and the books receive no harm whatever from it.

Modern construction and mechanical improvements have not only overcome all the old evils of high shelving and introduced no new ones, but have increased greatly the value of the stack system in several ways. There is now no necessity for the heat, dust, darkness, distance or fire danger of the older shelving. They are overcome largely by making all openings in the outer walls air-tight, closing doors to other apartments by automatic springs, and circulating the air mechanically.

A stack may now be built to any height, of any dimensions and in any place, above ground or even below, with perfect security of the books and convenience of access. It may even be located in the center of the building, and rise therefrom in a tower. We may imagine a location given for a library building where it is essential that the stack should be safely separated from the adjoining property and danger of fire therefrom; also that the ground area for the building is too limited to accommodate a large stack capable of future extension. In such a case the reading, delivery and catalog rooms could partially or quite surround the stack, which could be a tower, starting, if need be, in the cellar, and extending upward indefinitely with windows in two opposite sides only. Future growth could be met by further extension of the tower stack upward, and the higher it would go the more light and air it would get. Elevators and book-carrying machinery would render quick service.

This somewhat extreme example illustrates the flexibility and range of the stack method of storing books.

Another plan already adopted for so important a library as the new Public Library of New York City, is to place the reading room on top of the stack in the third story of the building.

Future extension is provided for laterally, including the reading room, while the books are simply drawn directly up thru the floor from the mine of human knowledge beneath and sent down again to the shelves.

Thus we see many ways in which the readers and the books may be brought into close and convenient relationship without actually admitting the readers amongst the shelves. Until recently librarians almost unanimously refused any general admission of readers to the shelves in public libraries, but now broader views and the multiplication of books have brought about a rule to provide a certain amount of so-called open shelving, which will be much extended in the future. If originally planned for, it is generally feasible to arrange the stack for any amount of open-shelf facility that may be desired. A much larger and broader use of the stack than has ever yet been attempted is entirely practicable.

The stacks in the Library of Congress were designed ten years ago with considerable reference to the convenience of readers who might be admitted to them when the moral conditions could be managed by the librarian. Convenient as they already are, some improvements could undoubtedly be made in them—and this is true of all designs of stacks to the present time—but they were originally designed almost without precedent and with but little suggestion to be had from librarians at that time. Since then the increased demand for stack shelving and the competition of manufacturers have produced one or two other stacks in which many of the good features have been adopted from that of the Library of Congress.

Is it sometimes asked if the high stack in open construction be not liable to ravage by fire, and whether good day lighting is practicable. As to fire, bound books are but poor fuel when properly shelved. Fire cannot be kindled amongst them by ordinary means, and even when started can travel but very slowly, even upward. This is well attested by the fact that fires have almost never been known to originate amongst shelved books, even in wooden shelving and cases which are more combustible than the books themselves. Libraries have, of course, been destroyed by fire, but almost invariably from outside sources. With fire-proof shelving in a fire-proof building and reasonable precautions to keep the books in close order on the shelves and prohibit the stuffing of loose paper, etc., amongst

them or anywhere else in the shelving, the fire risk will be next to nothing.

Furthermore, it is entirely practicable in very lofty stacks to insert continuous floors at intervals of a few tiers, not to mention other safeguards of which wire gauze is one, should any seem to be really advisable.

As to lighting, it is not too much to predict that the stack of the future large public library will depend almost wholly on electricity. No matter how much daylight may be provided for in the design and location of the stack, the sun shines but two-thirds the time that the library is in actual use, and that in clear weather only. Artificial lighting must be extensively depended on at best, and it is but a step directly in the line of economy to depend on it altogether. With the electric light perfect uniformity of illumination is to be had at all times, day and night, unaffected by the thunder-cloud shadow or the dark, rainy day. With suitable ventilation there is no reason at the present time why the magazine of books may not be satisfactorily constructed and operated in total disregard of the old *sine qua non* of ample daylight.

But while modern stack shelving in one form or other is suited to almost every variety of library collection, other considerations favor the adoption of so much of Dr. Poole's idea as to place the maps, periodicals, music, manuscripts and prints in separate rooms, provided with specially contrived cases and conveniences for their handling and examination, all, however, to be in reasonable proximity and connection with the main reading room. Such an arrangement with special furniture has been made on a commensurate plan in the Library of Congress.

When conditions permit, the general delivery room should be on the ground floor, with the main entrance or lobby opening directly into it. The stack should stand as closely as possible behind the delivery counter, the general reading rooms should be on the same floor near by, the catalog and catalogers close at hand and all under the eye of the librarian or assistant in charge. This is readily accomplished by adopting ample floor space and using glass partitions, if the lot be spacious enough for an isolated building. Thus the librarian's office and some of the more important working rooms may be brought well together and the cost of administration minimized. On a second floor, special reading and study rooms and a lecture hall can be

located, while the basement, if but partially below ground level, will accommodate everything relating to the care, supply, repair and warming and ventilating apparatus of the building. Even an excellent children's reading room may be had there, closely related to the delivery room and easily reached from the street without disturbance of the older readers above. An ultimate arrangement of this kind is contemplated for the new Public Library in this city. The general plan just outlined is that of this building.

An ordinary public library building need not, therefore, exceed two or two-and-a-half stories, thereby securing direct service, and avoiding elevators, not to say too many stairs.

The planning of a new library building should begin as nearly as possible with these principles, and in the librarian's office—not the architect's. A schedule of the most important rooms and passageways should first be tentatively decided on some diagrams sketched to arrange them in plan. Careful consideration should be given to the purpose of the building, and ideas of what is needed formulated as definitely as possible. Then a good architect may be profitably consulted. If it be practicable to engage him at once outright this would be the better course, but if a competition of architects must be had the services of the preliminary consulting architect will be confined to questions of limit of cost, general possible arrangement of the building, and a program for the guidance of the subsequent competing architects, so that they may work on a uniform basis and be fairly adjudged. If the competition be not carefully defined, and assurance of intelligent and unprejudiced final judgment thereof given at the outset, desirable architects will not take the trouble to enter the competition, whatever may be the reward offered. The very competent and desirable architect is not likely to be he who is aggressively seeking the commission and asking an opportunity to compete for it.

The compensation of architects is essentially uniform, and so it costs no more to employ the best than the poorest, while the value received from the former is likely to go far beyond the amount of his fee.

If the site of the building be not dry the underground parts should be thoroly damp-proofed to ensure not only a dry cellar or basement, but prevent soakage of walls and the results of damp air in the building. Extraordinary care should be taken

in the design of the roof to ensure reasonable immunity from leaks and the insidious action of ice and snow. The most beautiful designs of buildings often involve the most difficult and exasperating roof problems. Gutters behind parapets and balustrades and the angles of towers, skylights and chimneys are continually calling for the roof tinker, being too often left by the architect to the mercy of that workman's ingenuity or carelessness, as the case may be.

All parts of the building should be essentially fireproof, which does not include all wooden furniture and trimmings, but especial care should be given to the danger of fire from neighboring buildings, and to the location and distribution of ventilating ducts to guard against communication of fire thru them to any part of the building.

The entire system of ventilation should also be so planned and operated as to exclude dust otherwise likely to be brought in by it in great quantities, especially if the building be in a dusty or smoky neighborhood.

The lighting of a library by day and by night is of the utmost importance, but too much disregarded. Herein the design must be so managed that ample, even excessive, light shall be admitted to all rooms where books are handled and read. For the sake of the exterior architecture, windows are too often small, misplaced, or omitted altogether. This is wrong. A library with inadequate windows is to that extent a closed building. Books are absolutely worthless in the dark, and less so only in proportion to the amount of light furnished in which to read them. The architect who cannot or will not allow his design to be controlled by the principle of ample daylight and air thruout all important parts of the building should stand aside.

Daylight should be admitted generally thru the walls near the ceilings in as much of a clere-story fashion as possible, and at least well above the floor and the eyes of readers. Light falling at a high angle and all around the room, if possible, is the best. Skylights are better than low windows, but the glass is never clean, and the sun strikes in and badly heats the room in summer, unless very lofty, while the arrangement is leaky and always troublesome.

The walls and ceilings of reading rooms should be broken up with shelving, pilasters, deep panels, etc., or have softened surfaces or be otherwise acoustically deadened to prevent the

travel of sound. Such rooms should be treated in this particular as having the opposite purpose of auditoriums. The floors are best if of solid hard material like stone. Tiling will answer if heavy and solidly bedded so as not to sound thin or hollow, but the economical material that is entirely effectual is a terrazzo or fine marble and cement concrete, laid thick in suitably sized panels to obviate cracking, and polished. Such a floor is more quiet than wood or ordinary tiles under footfalls—because solid and inert—and is easily kept clean and sanitary. Nothing in the use of a library reading room can harm it, and no covering is necessary except small, thin rugs under the feet of some persons, and cheap carpet or rubber runners laid in the aisles where most walking occurs.

Finally, having built and equipped the new library and opened it for business, a firm and tactful administration will be needed to adapt the notional and uneasy employees and visitors to the conditions. No supply of light and air, refinement of warming and ventilation, mechanical equipment or arrangement of details in a building can ever be devised that will satisfy everybody, especially if allowed too much freedom of criticism and choice. But library buildings will in the future be better designed and better built than ever before, and there can be no excuse, even now, for building inadequately. More attention will be given to the beauty of design which the capable architect can always accomplish, even with moderate means, and make the building express its purpose so well and so artistically, that it may never be mistaken in any community for anything else than a library building.

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LIBRARY BUILDINGS

The special value of this article by W. R. Eastman, from *The Library Journal*, even without illustrations, is its recognition of the wide variety of designs with which it is possible to secure both usefulness and beauty in a library building.

A sketch of Mr. Eastman will be found in Volume I of this series, *The Relationship Between the Library and the Public Schools*.

A building is not the first requisite of a public library. A good collection of books with a capable librarian will be of great service in a hired room or in one corner of a store. First the librarian, then the books and after that the building.

But when the building is occupied the value of the library is doubled. The item of rent is dropped. The library is no longer dependent on the favor of some other institution and is not cramped by the effort to include two or three departments in a single room. It will not only give far better service to the community, but will command their respect, interest and support to a greater degree than before.

The following hints are intended as a reply to many library boards who are asking for building plans.

The vital point in successful building is to group all the parts of a modern library in their true relations. To understand a particular case it will be necessary to ask some preliminary questions.

I. *Books.*

Number of volumes in library?

Average yearly increase?

Number of volumes in 20 years?

Number of volumes to go in reference room?

Number of volumes to go in children's room?

Number of volumes to go in other departments?

Number of volumes to go in main book room?

If the library is large will there be an open shelf room
separate from the main book room?

Is a stack needed?

Will public access to the shelves be allowed?

By answers to such questions a fair idea of the character and size of the book room may be obtained.

Rules for calculation. In a popular library, outside the reference room, for each foot of wall space available 80 books can be placed on eight shelves. Floor cases having two sides will hold 160 books for each running foot, and in a close stack 25 books, approximately, can be shelved for each square foot of floor space. But the latter rule will be materially modified by ledges, varying width of passages, stairs, etc.

The above figures give full capacity. In practical work, to provide for convenient classification, expansion, oversized books and working facilities, the shelves of a library should be sufficient for twice the actual number of books and the lines of future enlargement should be fully determined.

2. *Departments.*

Is the library for free circulation?

Is the library for free reference?

Are special rooms needed for

high school students?

children?

ladies?

magazine readers?

newspaper readers?

How many square feet for each of the above rooms?

Are class rooms needed as in a college library?

Club rooms?

Lecture rooms?

Museum?

Art gallery?

Other departments?

3. *Community.*

In city or country?

Population?

By what class will library be chiefly used?

School children?
Students?
Mechanics?
Reading circles?
Ladies?

4. *Resources and conditions.*

Money available?
Money annually for maintenance?
Size of building lot?
Location and surroundings?
How many stories?
Elevators?
Heat?
Light?
Ventilation?

5. *Administration.*

Is library to be in charge of one person?
How many assistants?
Is a work room needed?
 unpacking room?
 bindery?
 librarian's office?
 trustees' room?

By careful study of these points a clear conception of the problem is gained and the building committee is prepared to draw an outline sketch indicating in a general way their needs and views. They are not likely to secure what they want by copying or even by competition. The best architects have not the time nor the disposition to compete with each other. A better way is to choose an architect, one who has succeeded in library work if possible, who will faithfully study the special problems, consult freely with the library board, propose plans and change them freely till they are right. And if such plans are also submitted for revision to some librarian of experience or to the library commission of the state, whose business and pleasure it is to give disinterested advice, so much the better.

The following outlines taken from actual library buildings are offered by way of suggestion.

SQUARE PLAN

An inexpensive building for a small country neighborhood may have one square room with book shelves on the side and rear walls. A convenient entrance is from a square porch on one side of the front corner and a librarian's alcove is at the opposite corner leaving the entire front like a store window which may be filled with plants or picture bulletins. With a stone foundation the wooden frame may be finished with stained shingles.

OBLONG PLAN

A somewhat larger building may have a wider front with entrance at the center.

Book shelves under high windows may cover the side and rear walls and tables may stand in the open space.

It will be convenient to bring together the books most in demand for circulation on one side of the room and those needed most for study on the opposite side. One corner may contain juvenile books. In this way confusion between readers, borrowers and children will be avoided. Each class of patrons will go by a direct line to its own quarter. This is the beginning of the plan of departments which will be of great importance in the larger building.

The number of books for circulation will increase rapidly and it may soon be necessary to provide double faced floor cases. These will be placed with passages running from the center of the room towards the end and that end will become the book or delivery room and the opposite side will be the study or reference room.

T-SHAPE PLAN

The next step is to add space to the rear giving a third department to the still open room. If the book room is at the back the student readers may be at tables in the right hand space and the children in the space on the left. The librarian at a desk in the center is equally near to all departments and may exercise full supervision.

The presence of a considerable number of other busy persons has a sobering and quieting effect on all and the impression of such a library having all its departments in one is dignified

and wholesome. It may be well to separate the departments by light open hand rails, screens, cords or low book cases. It is a mistake to divide a small building into three or four small rooms.

SEPARATE ROOMS

For a larger library these rails must be made into partitions, giving to each department a separate room. Partitions of glass set in wooden frames and possibly only eight feet high may answer an excellent purpose, adding to the impression of extent, admitting light to the interior of the building and allowing some supervision from the center. With partitions on each side, the entrance becomes a central hallway with a department at each side and the book room at the end. This is the best position for the book room for two special reasons. Overlapping the departments in both wings it is equally accessible from either, and at the back of the house a plainer and cheaper wall can be built admitting of easy removal when the growth of the library requires enlargement.

Sometimes the angles between the book room and the main building may be filled to advantage by work room and office. These working rooms tho not large and not conspicuous are of vital consequence and should be carefully planned.

We have now reached a type of building which, for lack of a better word, I may call the "butterfly plan," having two spread wings and a body extending to the back. Others call it the "trefoil." This general type is being substantially followed in most new libraries of moderate size. From one entrance hall direct access is given to three distinct departments, or perhaps to five, by placing two rooms in each wing.

MODIFICATION REQUIRED BY LIMITED SPACE

If we have an open park to build in we shall be tempted to expand the hallway to a great central court or rotunda. Perhaps the importance of the library may justify it, but we should be on our guard against separating departments by spaces so great as to make supervision difficult or passing from one to another inconvenient. We should aim to concentrate rather than scatter.

More frequently the lot will be too narrow. We must draw in the wings and make the narrower rooms longer from front to

back. With a corner lot we can enter on the side street, leaving a grand reading room on the main front and turning at right angles as we enter the house pass between other rooms to the book room at the extreme end of the lot. Or again, we shall be obliged to dispense entirely with one wing of our plan, and have but two department rooms instead of three on the floor. Every location must be studied by itself.

OTHER STORIES

Basement rooms are of great service for work rooms and storage. A basement directly under the main book room is specially valuable to receive the overflow of books not in great demand.

A second and even a third story will be useful for special collections, class and lecture rooms or a large audience hall. In a library of moderate size it will often be found convenient to build a book room about 16 feet high to cover two stories of bookcases and wholly independent of the level of the second floor of the main building.

EXTENSION

To meet the needs of a rapidly growing library it is important at the beginning to fix the lines of extension.

A building with a front of two rooms and a passage between may add a third room at the rear, and at a later stage, add a second building as large as the first and parallel to it, the two being connected by the room first added.

This is the architect's plan for the Omaha Public Library.

OPEN COURT

When a library is so large that one book room is not enough, two such rooms may be built to the rear, one from each end of the building with open space between, and these two wings may be carried back equally and joined at the back by another building, thus completing the square around an open court.

This gives wide interior space for light and air, or grass and flowers. Such is the plan of the Boston Public and Princeton University libraries. It will be the same in Minneapolis

when that library is complete. In the plan of the new library at Newark, N. J., the central court is roofed over with glass becoming a stairway court with surrounding galleries opening on all rooms. In Columbia University, New York, as in the British Museum, the center is a great reading room capped by a dome high above the surrounding roofs and lighted by great clerestory windows.

If the street front is very long there may be three extensions to the rear, one opposite the center and one from each end, leaving two open courts as in the plan for the New York Public or the Utica Public; and this general scheme may be repeated and carried still farther back leaving four open courts as in the Library of Congress. This plan can be extended as far as space can be provided.

When the general plan of the large building is fixed, passages will be introduced, parallel to the front and sides, and departments will be located as may be judged most convenient, always having regard to the convenience of the patrons of each department in finding ready access to the books they need and providing for supervision and attendance at least cost of time, effort and money. Extravagance in library building is not so often found in lavish ornament as in that unfortunate arrangement of departments which requires three attendants to do the work of one or two.

LIGHT

Natural light should be secured if possible for every room. Windows should be frequent and extend well up toward the ceiling terminating in a straight line so as to afford large supply of light from the top. Windows like those in an ordinary house or office building, coming within two or three feet of the floor, are more satisfactory both for inside and outside appearance than those which leave a high blank wall beneath them. From the street a blank wall has a prison-like effect; on the inside it cuts off communication with the rest of the world and the impression is unpleasant. The proper object of library windows six or eight feet above the floor is to allow unbroken wall space for book shelves beneath them. There is no serious objection to this at the back of the room or sometimes at the sides of the house where the windows are not conspicuous from the street, but every room of any size, if it is next to the outer

wall, should have windows to look out of on at least one side.

A book room at the back of a building may secure excellent light from side windows eight feet above the floor with lower windows at the back.

The lighting of large interior rooms is often a difficult problem. Light will not penetrate to advantage more than 30 feet. Skylights, domes and clerestory windows are used. In the case of the dome or clerestory the room to be lighted must be higher than those immediately surrounding it. The clerestory plan with upright windows is most satisfactory when available, being cheaper and giving better security against the weather than the skylight. In a large building with interior courts, the lower story of the court is sometimes covered with a skylight and used as a room.

This appears in the plans for the New York Public and the Utica Public libraries. Skylights must be constructed with special care to protect rooms against the weather.

The problem of light is peculiarly difficult in the crowded blocks of cities. A library front may sometimes touch the walls of adjoining buildings so that light can enter only from the front and rear. If extending more than 40 feet back from the street, it will be necessary to narrow the rest of the building so as to leave open spaces on each side, or to introduce a little light by the device of light wells. Occasionally a large city library is found on the upper floors of an office building, where light and air are better than below, and the cost of accommodation is less. The use of elevators makes this feasible.

MISCELLANEOUS NOTES

A floor of hard wood is good enough for most libraries. Wood covered with corticene or linoleum tends to insure the needed quiet. Floors of tile, marble or concrete are very noisy and should have strips of carpet laid in the passages.

On the walls of reading rooms it is neither necessary nor desirable to have an ornamental wainscot, nor indeed any wainscot at all, not even a base board. Book cases will cover the lower walls and books are the best ornament.

Small tables for four are preferred in a reading room to long common tables. They give the reader an agreeable feeling of privacy.

Do not make tables too high ; 30 inches are enough.

Light bent wood chairs are easy to handle.

Steam or hot water give the best heat and incandescent electric lamps give the best light.

Be sure that you have sufficient ventilation.

Windows should be made to slide up and down, not to swing on hinges or pivots.

Without dwelling further on details let us be sure.

1, That we have room within the walls for all the books we now have or are likely to have in twenty years; provide the first outfit of shelves for twice the number of books expected at the end of one year and add bookcases as we need them, leaving always a liberal margin of empty space on every shelf. We must plan for the location of additional cases for twenty years with due consideration of the question of public access.

2, That needed departments are provided in harmonious relation with each other and so located as to serve the public to the best advantage and at least cost of time, strength and money.

3, That the best use of the location is made and the building suited to the constituency and local conditions.

4, That the estimated cost is well within the limit named, for new objects of expense are certain to appear during the process of building and debt must not be thot of.

5, That the building is convenient for work and supervision, a point at which many an elegant and costly building has conspicuously failed.

Make it also neat and beautiful, for it is to be the abiding place of all that is best in human thot and experience and is to be a home in which all inquiring souls are to be welcomed. Since the people are to be our guests let us make the place of their reception worthy of its purpose.

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LIBRARY BUILDING

Just when we were all congratulating ourselves because we had built our libraries according to the latest principles, Mr. Dana came along and told us that they were all bad. "Build a shell and be able to change it at will" is the gist of his advice in this article in *Public Libraries*. This plan is sometimes referred to as the "loft" plan and has affected subsequent library construction.

A sketch of Mr. Dana will be found in Volume I of this series, *The Relationship Between the Library and the Public Schools*. He died July 21, 1929.

In the modern view of library administration, now held by almost every librarian in this country, the object of a building is to make it easy for people to come into immediate contact with a collection of good books. A building in which this immediate personal contact is impossible, on account of construction and arrangement, cannot possibly contain the kind of a library that every live librarian now wishes to have. The open-shelf system is perhaps not so important from the point of view of method as from the point of view of spirit. Only by giving the public access to the books themselves can you secure in the management of the library the kind of spirit in its administration, the kind of attitude toward the people who visit the library, which will make it a grateful and hospitable place. No one of good judgment ventures today to dogmatize about the character of library building save, perhaps, to this extent: we may, without serious fear of contradiction, declare that nearly every library building thus far constructed is bad. When I say we cannot dogmatize about library buildings, I mean that libraries are going to change in their management in the next ten years, just as they have changed in the last ten years. What those changes will be we cannot tell. What demands the public will make we do not know. Buildings erected thirty years ago, twenty years

ago, ten years ago, to say nothing of those of yesterday, are all poor because not adapted to present-day needs. We are pretty sure only of this much, that every library is going to need more floor space than it now thinks it will need; that every library needs light; that the more you can get in of floor space, and the fewer stairs, the better. There are a few other essentials all set forth in a little book by Soule, published by Houghton, Mifflin Company, and sold for ten cents.

My advice in general to any town would be to build as large a building, I mean one to cover as much ground, as funds permit. See that it is well lighted. Put in no permanent partitions save those necessitated by stairs, closets, etc. Do not fasten any furniture to the building, no desks to the floors or book cases to the walls. Have the book-cases made independent so that they can be moved. Build the bookcases of wood, 9 or 12 feet long. Add a stack wing to store the little used books in. When you have moved into the building arrange the room, desks, book-cases, tables, and chairs, as seems advisable. With growth, and there will be growth, and changes of method, and there will be changes of method—shift your book-cases and furniture and adjust yourself to new conditions.

I have yet to visit a library where there is not much regret because the architect built a building that is not flexible, and adjustable to present-day uses.

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GIVING CARNEGIE LIBRARIES

The greatest single influence upon library building in America was that of Andrew Carnegie. Since his is now a completed chapter of history, a description of the method by which Mr. Carnegie's wishes were carried out, and a memorandum sent out by the Carnegie Corporation are included.

The first gift he made in America was to Braddock, Pennsylvania, in 1881; the next to Pittsburgh in 1882. These continued and increased annually till for 1899, gifts aggregating \$3,503,500 were recorded in the *Library Journal*. By 1917, when the Carnegie Corporation, the body which Mr. Carnegie had appointed to carry on this work, decided to make no more gifts of library buildings, the donations had amounted to \$65,069,000 to 2,865 institutions. These were distributed thruout the English speaking world, but the cut in connection with the article in *World's Work* by Isaac F. Marcosson, assistant editor, shows the distribution in 1905 over the United States.

Mr. Marcosson's editorial experience began with the *Louisville Times*, and continued thru *World's Work*, *Munsey's Magazine*, and the *Saturday Evening Post*. He is author of a number of books on finance, war, peace, and commerce.

In one of the principal streets of Allegheny, Pa., stands the heroic bronze statue of a man in the simple garb of an American of fifty years ago. Almost within sight is a magnificent structure whose towers rise far above all the adjacent buildings. The statue is that of Colonel Anderson and was reared by Mr. Andrew Carnegie in grateful appreciation of his kindness in opening his library of four hundred books to the young men of the town, which enabled Mr. Carnegie, when a telegraph

messenger boy, to obtain access to literature. That kindness made the boy declare that if he became rich he would devote his wealth to the building of libraries for people who could not afford to buy books. The splendid building was the first fulfilment in America of that promise of a fruitful generosity which now extends around the world.

In nearly every English-speaking country today there is a Carnegie free public library. Altogether there are 1,352. During every hour of every day some of these libraries are open and in use. In New Zealand they enlighten the Maori; in the crowded East Side of New York City they uplift a congested foreign population; in Ireland they influence a struggling race. Without regard to creed or color, they have everywhere taught the value of high intellectual ideals. They have placed (or will place, when the buildings planned are erected) free reading within the reach of 25,000,000 people, and they represent a total benefaction of more than \$40,000,000. No individual has ever contributed so much to a single cause or touched so many people. It is the most remarkable public service in the history of philanthropy, and its conduct is as unusual as the personality behind it.

THE BUSINESS OF GIVING LIBRARIES

Almost any day you may read in the papers that Mr. Carnegie has presented some town with a sum of money to build a free public library. The conditions imposed are that the community furnish a site and provide for an annual fund by taxation to maintain the institution. This simple announcement means that the whole machinery of a wonderful organization has been set in motion. When Mr. Carnegie was in business he dominated the steel industry of the United States by the application of methods that made him a conspicuous leader of industry. When he started to apply his great fortune to a constructive activity that appealed to his sentiment and his enthusiasm, he remained the business man. The result is that the system of giving free libraries is as well organized as the most perfectly conducted commercial establishment in the world. Few people know of the working of this system, yet many millions have been benefited by it.

Most wealthy men who make public gifts in a large way have a general office where all that business is transacted, but

it is different with Mr. Carnegie. When he is in New York (and that covers six months of every year) the center of activity is at his residence at Fifth Avenue and Ninety-first Street. Within the imposing mansion that overlooks Central Park you will find the records of nearly every Carnegie Library in the world, and what records are not there are at Mr. Carnegie's Scotch home, Skibo Castle, where he goes every summer. The work is continued at Skibo without interruption.

Go to the New York house any day and ask Mr. Carnegie's secretary the cost of the public library at Fort Worth, Texas, and he will tell you in two minutes; inquire the progress of the work on the library in Louisville, and you will know almost as quickly. Ask any fact about the building which bears Mr. Carnegie's name in Tasmania, and it would be forthcoming just as soon.

The moment you enter the office of Mr. Carnegie's secretary, you feel that you are in a business place. Altho inside one of the most palatial residences in New York, it is as different from the home part of the building as if it were down in Wall Street. You hear the click of typewriters; in the center is a long desk littered with papers, and lining two of the walls are files of oak cabinets. Scrutinize the labels of these cabinets and you will see lines with which every school boy is familiar. Here is a section for "Carnegie Institution"; another bears the card "Organ Gifts"; a third shows "Carnegie Hero Fund"; but there are dozens of sections labeled "Libraries," for it is in these cabinets that the whole inside story of the greatest benefaction in the world is told. Carefully arranged alphabetically is every document bearing on every Carnegie library, ranging from the simple, earnest appeal of an obscure clergyman striving for the welfare of his community in Scotland, to the ornate official request of a large municipality for a million dollar gift. Yet both of these applications have gone thru the same channel and both have received the same consideration.

Any English-speaking community in the world may secure a Carnegie library by making a formal request and fulfilling the business conditions imposed by Mr. Carnegie. Suppose in Nebraska a city of 10,000 people is without a public library building, and a public-spirited citizen, hearing of Mr. Carnegie's library gifts, writes to him asking for a sum of money to build a building. It is a part of the free library system that every

letter bearing on a library matter shall be considered and answered. The moment the letter is opened by Mr. Carnegie's secretary, it becomes part of the system which has made it possible successfully to handle the work of more than a thousand libraries, often with the negotiations for several hundred going on at the same time. Immediately upon receipt of the request, Mr. Carnegie's secretary sends a blank form to the applicant, whether it be individual or society, provided they give evidence that the community or their officials are with the project, asking that certain questions be answered. These replies aid Mr. Carnegie in the consideration of the gift. There is a whole series of documents carefully prepared and adapted for every local condition, which is furnished to applicants. It shows how perfect is the method which Mr. Carnegie has adopted.

If the applicant be a college, a more elaborate form is sent, asking for specific information about endowment and for all the facts and figures to show the general and financial condition of the institution. The experience gained in regard to hundreds of institutions enables Mr. Carnegie to find a weak spot in many cases. The request for an elaborate hundred thousand dollar library when a twenty-five thousand dollar structure would be ample, receives little sympathy for the applicant and his case.

When these forms have been filled out and returned to Mr. Carnegie, they form a basis for systematic consideration. If the applicant be favorably considered and allowance be made for a building, Mr. Carnegie requires the council or local governing body of the community to devote a specific sum yearly (usually 10 per cent of the cost of the building) for the maintenance of the library.

Mr. Carnegie does not provide plans, but he likes to have them submitted for approval. He does not interfere with the local authorities in choosing a site. Believing in home rule, as he does, a site which is satisfactory to the people and their representatives is satisfactory to him.

When all the requirements imposed by Mr. Carnegie have been met, and when the building plans have been sent on and approved, the Library Commissioners receive intimation that Mr. Carnegie's cashier at the Home Trust Company, Hoboken, N. J., will honor their calls to the full amount of the gift. All requisitions for library money must be made by the officers appointed by law to take charge of the library in the com-

munity, and must be certified by the architect in charge of the work.

A Carnegie library building must be used exclusively for library purposes. It must be built on a site furnished by the community or by gift from some benevolent citizen. Altho Mr. Carnegie's name, by the common and spontaneous consent of a grateful people, adorns a thousand buildings all over the world, he has never made a request that this be done.

How does Mr. Carnegie know the amount of money to give to a community? The information that he receives on the blank forms largely determines this. It has been his custom to give about \$2 for every inhabitant, according to the latest Federal census. A town of 10,000 people usually gets \$20,000. It is astonishing how towns grow according to applicants for libraries. Mr. Carnegie's secretary says that if applicants for libraries are to be believed, the next census of the United States will show 150,000,000 people, at least. A claim of a 25 per cent increase since the Federal census of 1900 is considered comparatively modest.

But Mr. Carnegie does not depend alone on the information he receives in this way. He is a careful reader of the newspapers; he keeps in touch with intellectual activities; he learns the needs of communities. Sometimes the original amount of the bequest has to be increased to cover the over-ambitious plans of those in charge, altho the data at Mr. Carnegie's command enables him to estimate closely the needs (not the desires) of a community. Sometimes cities enlarge the scope of their work. Louisville, for example, originally received a gift of \$250,000. The library commissioners there decided to establish branch libraries, and asked Mr. Carnegie for an additional \$200,000, which he gave.

Branch libraries, which bring books close to the people, appeal more to Mr. Carnegie than large central buildings, in which something ornate and monumental is more likely to be the object than a storehouse for books and facilities for their being read.

The cost of Carnegie libraries sometimes exceeds their original estimate, and Mr. Carnegie is called on to make up the deficit, which he usually does, provided it is clear that the building was planned and contracted for in good faith, within the amount offered, and that the deficit is not excessive. But

once a library reported a surplus. It was at Mount Vernon, New York. The chairman of the Library Building Committee wrote Mr. Carnegie that there was a surplus of \$50, and asked for instructions as to its disposition, whereupon he received the following characteristic letter:

NEW YORK, January 16th, 1904

MY DEAR MR. GAY—Yours of the 11th received. You have broken the record this morning by your note. In all my experience, having provided funds for about thirteen hundred and fifty libraries, I have never had a Chairman of a Building Committee report a surplus, and I have very often had to meet a deficit.

Please hand over the surplus to the Library to purchase an encyclopædia or some standard work thought most useful. In short, make a disposition of it as you think best, feeling that I can trust the chairman of a committee who builds a library, with all its unexpected demands, for a stated sum, and shows a balance at the end.

With sincere congratulations,

Very truly yours,

ANDREW CARNEGIE.

WILL F. GAY, Esq.,

Carnegie Library Building Committee,

High School Building, Mt. Vernon, N. Y.

P.S.—You must have a model architect.—A. C.

THE SPIRIT OF THE GIVING

Mr. Carnegie's library-giving has never taken the form of charity. He has never bestowed money for this purpose except where the people have shown their desire to support a library.

Mr. Carnegie's rule in the distribution of millions of dollars has been "Equal sympathy for all; special favors for none." This rule has never been broken in the long story of his gifts. His is perhaps the only great organized public service with iron-clad rules which affect hamlet and metropolis alike.

Mr. Carnegie believes in home rule in all matters pertaining to the location and conduct of buildings. But sometimes complications arise, as in the case of a city thru which a river flows. Then there is a controversy as to which side shall have the library. This happened at Waterloo, Iowa. The city met the usual requirement for taxation, but a discussion arose between two factions representing the people on both sides of the river. Neither side would give in. Finally a compromise was effected, by which it was agreed to build the library in the middle of the

river. When Mr. Carnegie heard of this, he good-naturedly decided to end the controversy by giving money for a library on each side of the river.

The whole vast library business is done by correspondence. Mr. Carnegie discourages personal visits. Out of 1,352 libraries which he has given, scarcely fifty have been secured thru personal contact. He does not like to be talked into giving, and insists that proper statements be submitted in writing; otherwise his time would not be his own. He carefully studies these statements at appointed times.

Within the folders which contain the records of the Carnegie libraries are hidden many stories of the cheerful self-sacrifice of communities in their desire to secure a building. The fishermen in a little town in the Orkney Islands wanted a library. The usual conditions were imposed. They had no money, but they sent in a subscription list which contained items like the following:

Fifty pounds of dried fish.
Twenty pair of knitted socks.
Four weeks of service by laborers.
Two days' carting.

They got a fund for books.

But no action was more characteristic than that of the herring fishermen and the other inhabitants of Shieldaig, Sutherland, Scotland. This is a small town on the storm-swept coast. The library secretary wrote to Mr. Carnegie, asking for money for books and magazines, and he received the usual reply that Mr. Carnegie never makes any kind of library gift without some action of the people of the community showing a desire to support it. In this case it was suggested that a subscription list be started. This was done, every inhabitant of the village contributing. Frequently the contribution was two pence. The people raised two pounds seventeen shillings and fourteen pence and Mr. Carnegie contributed an equal sum.

LIBRARIES IN THE UNITED STATES

It is in the United States, however, that there has been the greatest activity. Only two states—Rhode Island and Arkansas—are without Carnegie library buildings. Rhode Island is amply provided with libraries, and Arkansas has no library legislation

which will permit communities to tax the people. Illinois has sixty cities and towns with sixty libraries, yet New York, with only forty towns with libraries, has 120 such institutions. This is due to the establishment of many branch libraries in New York City with Mr. Carnegie's gift of \$5,200,000. The Carnegie libraries in Illinois are more evenly distributed than in any other State in the Union, because there is only one library in a town. A table of Carnegie libraries of the United States shows a significant growth in the newer States and particularly in the West. For example, Iowa has fifty-four towns with Carnegie libraries. California has thirty-six towns with forty-six libraries. Texas has twenty. There are two in Indian Territory, three in Arizona and two in New Mexico. Kansas has sixteen and Nebraska has nine. Illinois leads the Central States, while Indiana is second with forty-nine towns with forty-nine libraries, again showing one library to a town and a wide distribution of the buildings. Massachusetts has only twenty-one Carnegie libraries, because nearly every town had a library when Mr. Carnegie began his work of establishing them.

Pennsylvania has thirty-four towns with seventy library buildings. This State was the first in which a Carnegie library building was erected, for it was at Allegheny that Mr. Carnegie reared the magnificent building commemorating the kindness of Colonel Anderson. This place and Pittsburgh witnessed his great business achievements. At Braddock, Homestead, and Duquesne, where his great steel works employed thousands of people, Mr. Carnegie built libraries for the workmen. He supplemented the library buildings with gymnasiums and meeting places, but it was the library work that began this welfare work for the people who served.

The largest percentage of the population in any community served by a Carnegie library is the District of Columbia, where the Washington building supplies 78.4 per cent of the people with books.

The total number of library buildings built and promised by Mr. Carnegie in the United States is 671. When all are built they will serve 18.9 per cent of the whole population. They represent a total benefaction of \$29,807,980. This includes the promise of \$100,000 for a building in Porto Rico. There are no Carnegie libraries in the Philippines.

Architecturally the Carnegie libraries have had an esthetic and uplifting influence thruout the whole country. Last summer

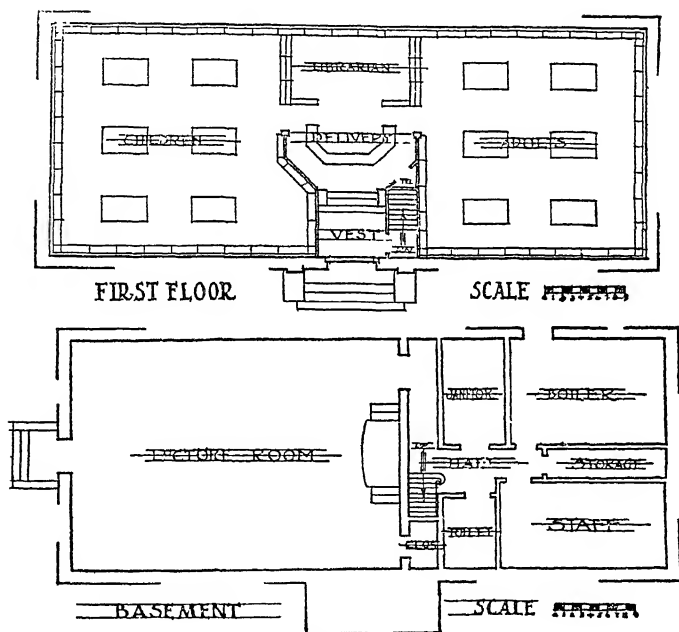
I was driving thru a little town in North Dakota. Ten years before it was a group of houses on a river bank and a stopping place for lumbermen on the way from Canada. That day I drove thru well-made streets. The driver stopped the carriage before a low, square, classic-looking building surrounded by trees.

"That's our Carnegie Library," he said. "We are mighty proud of it."

"Why?" I asked, curious to find out what he would say.

"Well," he said, "that building has made everybody else here want a nice building." I had a similar experience in Kansas.

NOTES ON THE ERECTION OF LIBRARY BUILDINGS *



A

This memorandum sent out by the Carnegie Corporation helps to explain the common conception that a particular style of architecture was demanded for Carnegie libraries, especially small ones.

This memorandum is printed and sent out by Carnegie Corporation to anticipate frequent requests for such information,

* Out of deference to Mr. Carnegie's advocacy of simplified spelling, the JOURNAL here follows the forms used in all official communications from Carnegie Corporation.

and should be taken as a guide. It should be noted that many of the buildings erected years ago, from plans tacitly permitted at the time, would not be allowed now.

Library committees, especially in small towns, are frequently composed of busy men who, having lakt time or opportunity to obtain knowledge of library planning, are led to select a design which, if bilt, would yield an inadequate return of useful accommodation for the money invested, and would unwarrantably increas the expense of carrying on the library.

Some architects are liable, unconsciously, no dout, to aim at architectural features and to subordinate useful accommodation. Some are also apt, on account of a lack of practical knowledge of the administration of a library, to plan interiors which are entirely unsuited for the purposes of a free public library. Small libraries should be planned so that one librarian can oversee the entire library from a central position.

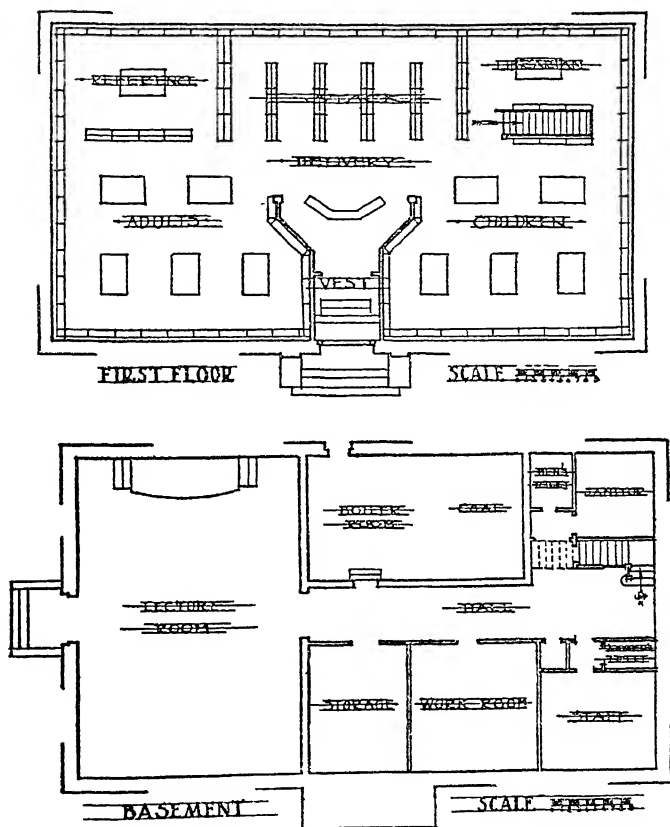
The amount allowd by Carnegie Corporation of New York to cover the cost of a Library Bilding is according to a standard based on (a) the population which is to pay the tax for carrying on the library, and (b) a specified minimum revenue from such tax. The donation is only sufficient to provide needed accommodation and there will be either a shortage of accommodation or of money if this primary purpose is not kept in view, viz.: *to obtain the utmost amount of effectiv accommodation for the money, consistent with good taste in bilding.*

The amount allowd is intended to cover cost of the bilding, complete and redy for use. The community and its architect in planning should take into account cost of indispensable fittings and furnishings.

In looking over hundreds of plans for small and medium-sized bildings, costing about \$10,000, more or less, we hav noted some features leading to a wasting of space, especially in connection with the entrance feature, which, when not wisely planned, leads also to waste in halls, delivery room, etc.

A frequent caus of waste is the attempt to get a Greek temple or modification of it, with a \$10,000 appropriation.

The economical layout of the bilding is sacrificed or subordinated at times to minor accessories, such as too much or too valuable space allotted to cloak rooms, toilets and stairs.



B

The bilding should be devoted exclusively to (a) housing of books and their issue for home use, (b) comfortable accommodation for reading them by adults and children, (c) lecture room, when introduced as a subordinate feature and not adding disproportionately to the cost of the bilding, (d) necessary accommodation for heating plant and service, without which the bilding could not be used.

Experience seems to show that the best results for a small general library are obtained by adopting the one-story and base-

ment rectangular type of bilding, with a small vestibule entering into one large room subdivided as required by means of bookcases. In cases where it is necessary, to secure quiet, glass partitions may be put above the bookcases. By a one-story and basement bilding is meant a bilding with the basement about four feet below the natural grade, the basement being about 9 feet and the main floor about 15 feet high in the clear. Plans hav at times been submitted for "one-story and basement" bildings, which only differd from two-story bildings by having stair to the upper floor outside insted of inside!

The rear and side windows may be kept seven feet from the floor, to giv continuous wall space for shelving. Stack-room space, when required, can be arranged as shown in the accompanying diagrams. A rear wing can be added for stack-room (when future need demands it) at a minimum expense, and without seriously interfering with the library service during its construction. The site chosen should be such as to admit lite on all sides, and be large enuf to allow extension, if ever such should become necessary.

The accompanying diagrams are offerd as suggestions in planning the smaller library bildings most commonly required, and will be found to include a maximum of effectiv accommodation relative to total area.

While these diagrams are suggestiv rather than mandatory, nevertheless, since they are the result of experience, those responsible for bilding projects should paus before aiming at radical departures, and see whether their alternativ is to provide as much effectiv accommodation and hav as little waste space.

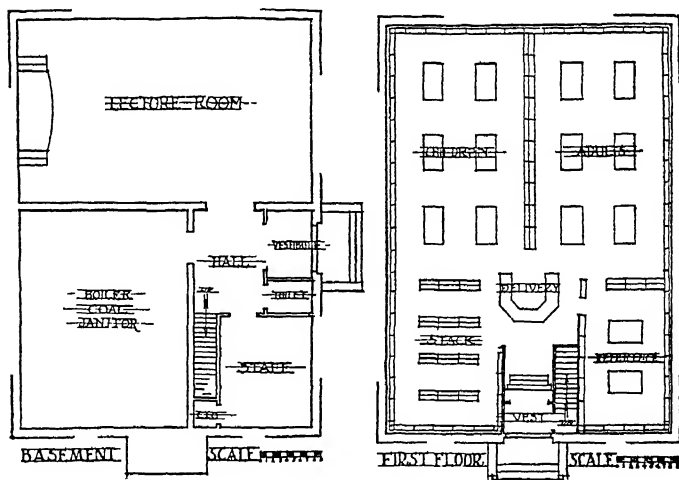
An important caus of alleged inadequacy of accommodation in bildings erected years ago, when less supervision was exercised, has frequently been found to be uneconomical plan with bad layout. When applications (based on growth of population) have been receivd for aid in extending such bildings, it has often been impossible to entertain the idea of making a grant, owing to the prohibitive cost of demolition and reerection relative to net gain of superficial area.

(A) The proportions of this plan are as 3 to 7. It offers an economical entranceway and two reading rooms approximately square. The basement admits of a lecture room and the usual accessories.

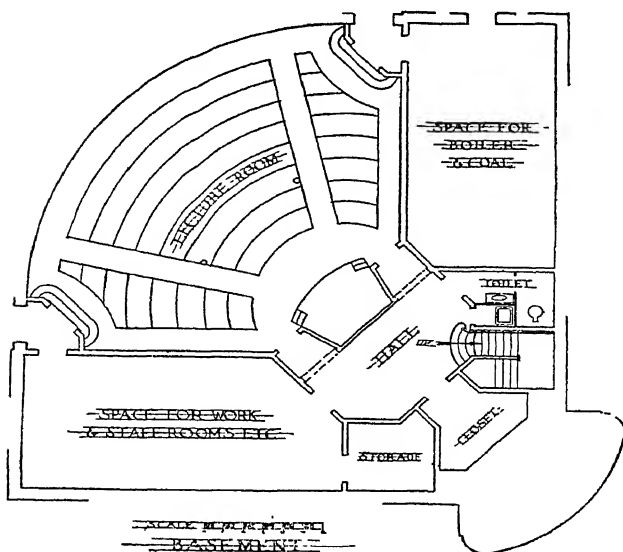
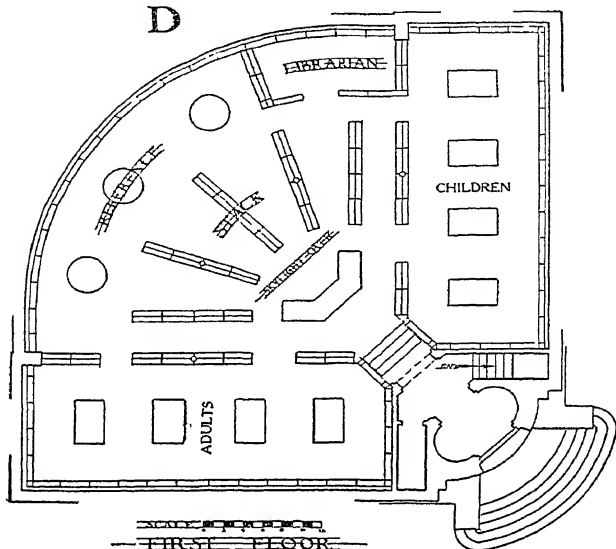
(B) This plan resembles "A," but its proportions are as 4 to 7. It indicates the possibility of free standing shelving or stacks, with separate spaces enlosed by shelves to form a librarian's work room and a reference room.

(C) This offers a type of bilding for a lot which is deep rather than wide, and may be varied from a square to an oblong plan of less or greater depth. Free shelving or stacks are indicated on one side under easy supervision from the library desk, but this space may be given to tables if stacks are not required. Very few bildings of square or deep type have been submitted which hav not been wasteful of accommodation. The plan illustrated, as will readily be seen, obviates lengthy halls and consequent waste of space.

NOTE: *Elevation of plans submitted for approval should clearly sho the floor and ceiling lines of basement and main floor, and the natural grade line.*



D



(D) This type illustrates a possible arrangement for a building with a corner entrance, but a corner entrance should generally be avoided, since this plan is less economical of floor space than the others and lends itself less readily to a good exterior.

It may not be desirable to have library buildings planned from ready-made patterns, and yet, a certain standardization of the main requirements of accommodation is as necessary for library buildings as for school buildings, which have been advantageously subjected to strict regulations both in plan and construction. Where architecture is best appreciated there are recognized types established for the various buildings of a public or semi-public character.

It will be noted that no elevations are given or suggestions made about the exteriors. These are features in which the community and architect may express their individuality, keeping to a plain, dignified structure and not aiming at such exterior effects as may make impossible an effective and economical layout of the interior.

These notes are of course written with the smaller buildings in mind; larger buildings require larger and more varied treatment, but no modification of the primary purpose.

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ECONOMICS OF LIBRARY ARCHITECTURE

The relation between expense and service as it affects many details of building plans was soundly and effectively expressed by Clement W. Andrews at the American Library Association Council meeting, December, 1915. We have here quoted his later presentation of the subject at Atlantic City, April, 1921, before the American Library Institute.

A sketch of Mr. Andrews will be found in Volume V of this series, *The Library and Its Contents*. He died November 21, 1930.

The paper which I am to present was prepared for the Chicago Literary Club. In revising it, chiefly by elision, much of the original wording has been left. This will explain, and perhaps excuse, a somewhat lighter tone, and the inclusion of some matter which might have been taken for granted in addressing a professional audience.

Still it will have the advantage of novelty, even to you. While several books have been written on library architecture and some papers on the economical aspects of certain details, there has been, so far as I know, no general presentation of the subject.

Perhaps the complexity and variability of the conditions have prevented such a presentation, for these are complex and varied to such a bewildering degree that an ideal and truly scientific solution would require the use of higher mathematics than I have at command or you the patience to follow, even if the room had sufficient wall space for the development of the equations.

A comprehensive survey must take into account, among many other items, the expenditure of money for the construction of the building; for its maintenance, after construction; the expenditure of time by the staff in the service of the library, which is of course an expenditure of money; of effort by the staff, which

is in most cases time and therefore money; and the expenditure of time and effort by the readers, which may be money to them and certainly is a factor in determining the economic return to the library for its expenditure.

These economic considerations apply to every part of the library's service; to its circulation department; to its general and special reference work; to the routine of classification and cataloging; to care of readers and staff; to its systems of heating, lighting and ventilation. Indeed, it would be difficult to find a single item of library work which is not affected in some degree by the plan of the building.

Then there are the distinctions to be drawn between the various classes of readers, and these distinctions sometimes require the balancing of directly contrary forces. Thus the time of children and of those who frequent the newspaper room cannot be considered as valuable as that of older and more serious readers; yet it has been found advisable, in the modern public library, to provide for these classes space near the entrance. For the children this is desirable because they cannot achieve and perhaps ought not to be forced to the quiet behavior of older persons, and they would inevitably cause confusion if they circulated in large numbers thru the main portion of the building. As to the newspaper room habitués, a visit to that room in almost any public library will convince one, on the evidence of more senses than one, of the undesirability of their permeating the building.

In the same way and for equally obvious, tho very different reasons, separate provision must be made for the use of medical collections, of music collections, of maps, by investigators requiring special desk facilities or wanting to consult a large number of books at one time, and by those readers who want to consult quickly a dictionary, directory, or other reference work. It is evident that the work of arranging the rooms to secure the maximum result from the minimum expenditure of money, time, and effort is like marriage in that it is not to be entered upon lightly or unadvisedly.

Again, while some of these factors have been determined with sufficient accuracy, others have been determined only approximately, and still others are not known at all or vary greatly at different times.

Thus of major factors the minimum width of aisles in the book stacks and the maximum length of shelves, factors which determine the most economical spacing of the columns, are known fairly accurately, the minimum space to be allotted each reader at the tables with somewhat less accuracy, but almost nothing is known of the relative economic value of the time of the individual readers, except that it cannot be taken at their own valuation and that it necessarily varies under different circumstances. For instance, a library built for peace conditions would naturally favor the convenience of a physician engaged in saving life over that of a chemist at work on a perfume to sweeten it. But in time of war the preference would be given to the chemist at work on a new poison gas to kill by the hundred thousand over that of the physician who could hope to save only by the score. Even then an exact solution would not be possible; for there is not on record any determination of the relative mental quickness of the chemist and physician, to decide the amount of preference to be given the one or the other in order to secure the maximum total result.

In smaller matters the same holds true. The time of the elevator run, the number of seconds required to open and close the gates, and to load and unload the car are known with sufficient accuracy to enable the architect to decide just how many elevators will give the most economical service. The service between the book stacks and the delivery desk is much less accurately known, tho in most libraries it is the more important factor. Every library has to determine the limiting conditions. No American library could follow the German plan by which the books are asked for one day and delivered the next; nor give an average service of an hour, as in the *Bibliothèque Nationale* at Paris; nor even the twenty minute service of the British Museum. The fifteen minute service of the Boston Public Library did not secure it from complaints, but I have not heard of any in regard to the ten minute service of the New York Public Library, nor that of five minutes at the John Crerar. The average service at the Chicago Public Library should be considerably less than five minutes, and one Scotch library has succeeded in bringing it down to one minute. Such rapidity of service, however, as that last mentioned, would require special arrangements which would hamper the work of a reference library too much.

Of course the time of service is not dependent solely on the means of communication between the stacks and the delivery desk. The number of attendants, their interest in the work, their age, sex, pedestrian ability and other qualifications, the number of miles of shelving which each has to cover, the number of calls which each has to fill, the number to be filled in a given time, all affect the service and must equally affect the plan of the stacks, the number and location of the attendants' stations, the arrangement of the corridors, and other architectural features.

To all these causes of variation in library plans must be added the great differences in the financial conditions of the institutions and in the character of the sites. Where no marked differences on all these points exist, as in the case of the public libraries in small towns, built by Carnegie gifts, there is a general agreement as to the principal features of the plan. There may be noted, I think, a similar tendency toward a type in the newer university libraries, and to a less degree in the public libraries of cities of medium size. But for the larger libraries of the country there has been no uniformity in the conditions as well as great differences in the attitude of the architects toward them.

Turning now to the consideration of details, the first question is as to size, or of the time for which provision is to be made. Here it is obvious that a compromise must be found which will make provision for a considerable time, and yet not lock up too much money in space not needed at first. Even if a satisfactory Globe-Wernicke style of library architecture could be evolved, the problem would remain; for this method of construction, like the book cases, would necessarily be more expensive than the usual one. Architects estimate that the construction of a building in two portions would add at least 10 per cent to the total cost.

The ground plan of the library is less likely to be considered from the economic standpoint. Perhaps it would be more accurate to say that the economic conditions affecting it are more likely to be overlooked. When libraries were used chiefly or solely in the day time or when the use of artificial light had to be kept at a minimum, either because of its injurious effect on the books or because of its cost, then the ground plan was naturally chosen so as to secure the maximum of daylight in all parts of the building. These plans have been followed long after the conditions indicating them have ceased to exist. There

is now, however, a more general recognition of the change in conditions and a strong tendency toward the solid rectangle advocated by Melvil Dewey years ago.

A comparison of the economic advantages of the different ground plans of some of the larger libraries may be of interest. One of the oldest is the hollow square. It is common in Europe, but the Boston Public Library is the only conspicuous example in this country. It furnishes nearly a maximum of well lighted space for a given area, but as it has eight façades it is expensive to build, maintain, and heat. Still worse, it gives the maximum dislocation of books, readers, and staff. It has been said that the farthest book on the regular shelves of the Chicago Public Library is nearer the delivery desk than the nearest in the Boston Library and it is evident that in the most unfavorable case the supply of a reader and the return may involve a combined journey of book and reader twice around the building.

Another ground plan, exemplified in the Columbia University Library and some other university libraries, is the Greek cross. It is even more expensive to build and heat and dislocates the work of the staff fully as much and the storage of the books even more, requiring, therefore, a proportionately large staff. Its only economic advantage seems to be in providing a large number of study rooms, but Harvard, with a larger library, and California, with a smaller one, have met this need in connection with a solid stack.

A less expensive plan is a Greek cross inside a hollow square, as in Library of Congress as first built. The New York Public Library when extended will have this form. As the open spaces are not large, they do not require elaborate ornamentation and the cost of heating also is less than for the hollow square. The passages thru the arms greatly facilitate the movements of readers and staff, and the storage of books can be made convenient or even central to the delivery desk, and the catalog can be placed in the best position.

The same advantages apply in even a larger degree to a rectangle with only two light wells. In its present form the New York Public Library has such a plan, also St. Louis and Cleveland, and it seems to be the best for public libraries in larger cities. Some of the newer university libraries have adopted the same plan but with a different arrangement of the reading rooms.

Several other forms have been used. There is a circular one at Oxford, and T shape of the old Harvard Library after the addition of 1876; and of very many small libraries; the L shape of many others; one or two triangular buildings, notably that of the Brooklyn Public Library; and some of irregular shapes conditioned by the sites.

Finally, there is the solid rectangle, with a large variation in the proportion of the sides from a square to a narrow oblong. This was the form of the old Boston Public Library, the first large public library building in the country; of Gore Hall at Harvard; of the Astor; and of many others. As used in these libraries, with a lofty central hall and alcoves at the sides for the books, the dislocation of the books was very great, and the space available for them too small for the increase of the collections. These considerations led Harvard in 1876 to adopt the stack system in which the books are housed compactly in rooms used for this purpose alone. By placing these stacks in a rectangle at right angles to the reading room, a very convenient arrangement was secured. Indeed, it varies from the general plan of the modern university library only in not having study rooms around the stacks. This addition could not have been made in 1876, when gas was the only available illuminant, and the library closed at sunset.

This form gives the minimum of cost of construction and maintenance, and a maximum of compactness and accessibility. I have selected two representatives, the Massachusetts Institute of Technology because of its oddity, and the John Crerar for other reasons.

The next factor, logically, is the height. The clear height of the stack floors is determined by the reach of the average attendant at not over $7\frac{1}{2}$ feet, and if the service floors are in contact with the stacks they should communicate on a level at every second or third floor of the stack. Personally, I would prefer every second floor, carrying the floors thru the stack, if at every floor there would not be sufficient light and ventilation for the staff, while every third floor would be unnecessarily high, causing loss of space and excessive vertical travel. The reading rooms require a greater height for proper lighting and ventilation and in addition permit closer seating without the feeling of being crowded.

A more important item is the number and arrangement of the rooms. Errors here may affect very seriously the number of

attendants required and thus increase the maintenance charge. The number and position of the reading rooms is especially important. Some division is necessary, as has been pointed out already. Such divisions, however, are costly and should be avoided as far as possible. The experience of the Newberry Library on this point is enlightening. Its original plan provided for a series of departmental reading rooms, each containing the books on a given subject, and served by attendants having expert knowledge of the subject. From time to time the system has been curtailed until now there is one central reading room and one other for the genealogical collection. The objections to a multiplicity of reading rooms are now felt so generally that most large libraries would refuse a gift which would require the establishment of a separate room, unless with an endowment sufficient to compensate for the disadvantages.

Except that the salaries involved are smaller the same may be said of the arrangement of the stacks. A dispersal of these requires more attendants and lengthens the time of service and so is uneconomical.

Under this head falls also an item which may be of considerable influence on the cost of the building and its maintenance. This is the space devoted to halls and corridors. These should give ready and ample access to such rooms as require this, but anything more, at least in a northern climate, is wholly an evil from the economic standpoint. That the maintenance charge of the New York Public Library is increased considerably by the extent of its halls and corridors is evident to any one who has been in the building. That the loss of time to readers and staff is also considerable is equally certain, tho perhaps not so obvious.

In the matter of lighting, as may be inferred from what has been said, there is a conflict of forces. The more compact building will require more artificial light, and also by permitting more work require more supplies. On the other hand, electricity is the one item of library expense which has not increased materially in cost in the last six years. Moreover, the introduction of the semi-indirect system has secured much better results than the direct for only a comparatively slight increase in the amount of current and almost as good results as the indirect for a considerable diminution in the current.

In ventilation, however, there is room for improvement. The usual method, where an artificial system is used, is to provide one sufficient for the whole building and requiring to be run as

a whole. Yet this is evidently uneconomical, for the needs of different parts of the building vary greatly both as to quantity and duration.

In concluding this part of the paper let me refer briefly to a phase of the subject which on first thought might not seem to belong to it at all. This is the esthetics of library architecture. Yet it is certain that the adoption of a style which is expensive to construct may impose too heavy a burden on the funds of the library, that one with much ornamentation will be more expensive to maintain, that one will give more available or better lighted space than another; and on the other hand that bad architecture or an absolutely plain building in the factory style will almost certainly cost the institution the respect and perhaps the good will of all who see it and use it. In economic terms this may well mean the loss of financial support from the community either in taxes or gifts, a loss of efficiency on the part of the staff thru lack of pride in the institution, and a disregard for its property and regulations on the part of the readers.

Speaking under correction as a layman, I do not think that simplicity and unity of plan are incompatible with dignity of style, beauty of design, or suitability of material.

Does not Polonius' advice fit exactly? "Costly thy habit as thy purse can buy, but not expressed in fancy." Would not Laertes have erred equally had he bought for his studies at the university either the full dress of a courtier or the overalls of a workman?

SITES

A problem present with building-plans for all classes of libraries is that of the site, its location, size, shape and slant. In many of the discussions of individual libraries and in general presentations of building principles this is discussed. Notable examples of problems of shape and size are Buffalo's building on a triangular lot and Brooklyn branches on irregular-shaped lots.

SELECTING SITE

Mr. Pendleton says in his advice to those starting libraries in small towns, simply to "let it be located in the most populous part of the town" and that is the essential which may be easily accomplished in a small place, but which becomes complicated as the size of the place increases.

There is a sketch in Volume VII of this series, *The Library and Its Workers*, of Dr. Hill who retired as librarian in 1930 to become librarian consultant of the Brooklyn Public Library. Dr. Hill states his approach to some of the problems in a paper on Library buildings read at the New England Association, Concord, New Hampshire, 1899.

The consideration of site is quite as important as the building itself, and demands the calm deliberation and the best judgment of clear-headed and far-seeing men.

Of the total amount appropriated, it is estimated that one-fifth may be used for purchasing land, and it is not safe to go beyond that proportion.

The right of condemnation of property should be given the board of trustees whenever the property cannot be purchased at a fair valuation. If it becomes known that certain plots are "being looked at," unless this authority is granted, the property takes a sudden rise in price, and the most desirable location cannot be secured on account of the absurd value set on the land.

The interest of the public is not really aroused until this subject is first broached, and if "general apathy" has heretofore ruled, "general mobility" is now in command. "Veritas," "Constant Reader," "Well-Wisher," and their followers will immediately take a hand in advising the trustees (thru the daily and weekly newspapers) as to the best location. Such interest is wholesome, and if of no practical value to the board, it tends to clear the atmosphere and please the people.

It will, I think, be admitted that the library should be near the business section; and it will just as readily be conceded that the best location for a library building is not necessarily on the main street. The principal street of any city is sure to be the noisiest, and property abutting thereon is more valuable than a block or two away, so that pecuniary and other considerations point to a quiet neighborhood, easily accessible from the main street, as being the ideal spot. The shopping district is the magnet which draws the crowd, and a library to do the greatest good must be near the charmed circle. A gift of land may make it obligatory to locate in the residence section, in which case it will be found essential to establish a branch downtown to accommodate business people.

In selecting the site, trustees, taking into account the prospective growth of the institution, will purchase land enough to admit of extending the building at some future time; or if the funds in hand do not justify this outlay, then the location should be such as to make the later purchase of adjoining property feasible at a reasonable figure.

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SITES FOR CITY LIBRARY BUILDINGS

A multitude of conditions and administrative problems involved when building in the city are well weighed in this article from *The Library Journal* by Electra Doren whose leadership in the library profession was strongly felt. Practically her whole life was lived in Dayton where she became assistant librarian in 1879 at eighteen, and was librarian from 1896 to 1905, and from 1913 till her death in 1927. She was lecturer at the Pittsburgh Library School 1903-05, chief instructor of the Western Reserve Library School 1905-06, a member of the Executive Board of the American Library Association 1917-20, and of the War Service Committee.

This paper is little more than a preamble and some statistics and the real meat will be found chiefly in the statistics. The work of Mr. Brett, and the studies on location of library buildings by Mr. Wheeler, Mr. Yust, Mr. Ranck, Mr. Dana and others, leave little more to be said in behalf of central location for the site of the main public library. Still, perhaps by sorting our experiences and by reviewing the general situation we may clear the ground for dealing with the powers that be—the unconvinced among library trustees, boards of education, city councils, as well as the city planning commissions.

Despite the definiteness in the statement of my subject, it is nevertheless an elusive one. For building site, once the location has been settled, has a most intimate relation to building plans and building codes, and very direct dependence upon main traffic lines, upon conditions for light and air, and upon possible area for future enlargement.

The building code, as we have been made painfully and expensively aware, is an early symptom of the city planning fever and if the disease is as acute as the symptom, we are in for considerable readjustment in our ideas about the planning of our next library buildings. Under the new system we shall no more

be allowed to practice the subtle economy of a large library building with but one or two public entrances and exists. There will be an excess of exits and entrances and of public lavatories in our main corridors; there will be unexpected stairways where no stairways are wanted; hatchways and light wells where we would be satisfied with forced ventilation and artificial light, etc. Of course, this is "all for our good." But it will cost. We must enlarge the area of our building sites, unless we would distort administrative efficiency and increase administrative costs by placing allied departments on different floors. For our buildings must expand either laterally or vertically.

When we turn for precedent to existing library or civic structures there are found variants sufficient to put out of countenance the hardiest guesser as to their purpose or their fitness for anything whatever. An extreme example in point is that of a library of my acquaintance which was mistaken more than once for a home for the aged, for a county jail, for a hotel, for an orphan home, for a courthouse, but most frequently of all for a masonic temple!

In library building, the problems of cities of two to four hundred thousand population are distinct from those of the great cities of millions and from those of the cities of 100,000 and under. Indianapolis and Seattle, both well on the way to 400,000, are already well settled. Other things being equal, libraries in cities in the intermediate class, which is the subject of our inquiry, are in a way to be both more obviously and more actively growing. One thing is certain, they have experience and knowledge of certain needs, and they are responsible, therefore, for preserving to the still larger city to come, the inestimable advantage of a proper building site.

The really large cities have built their libraries with stately approach from without and stately corridors within, and they have their great specialized departments for the main divisions of knowledge, History, Literature, Fine Arts, Sociology and economics; Science, Technology, etc. This more divided form for housing books has succeeded the galleries of books with fixed location, surrounding the dome of the one great reading room of an earlier day, such as the Peabody Institute of Baltimore or the old Boston Public Library.

For the city of the 100,000 population and the lesser cities in this class, there is the neatly devised Carnegie building with central supervision, outspread reading and reference rooms in

butterfly wings and bookstack body in the rear of the Circulation desk, all beautifully placed in a park or public square with light on four sides.

The library in the city of the intermediate class of 200,000 population is a more or less successful combination of one or the other of these types but not so distinctly a type in itself as either of them. And some of us are blessed with a pseudo-romanesque structure in rubble stone, with walls two and a half feet thick, to enclose a Roman cross arrangement of pigmy reading-rooms and a far away book stack where mere cubby holes of workrooms and offices are tucked out of the way under the stairs or darkly hidden among the books.

We need not smile. These buildings represent the highest reach of the library imagination to the generation that built them and we ourselves are coming to the testing point where, if we can, we are to appraise present needs and forecast the future. The question is whether we can do this; and, further, whether we shall be sufficiently hardy to claim and to contend for the space and site essential to most effective service of an institution rapidly extending its traditional functions and creating new ones. Only as such conditions are adequately met is the public library to be counted alive and worth its keep. If location and site are unwisely chosen the utmost that a convenient and handsome building, good books and skilled personnel can do, will be disastrously neutralized.

We cannot praise too highly the patience and wisdom of the librarians of Los Angeles and Cleveland, who for years have been creating new library functions and marking out new paths in library adventure, all in rented quarters in the retail districts—far from the madding silences of the parked library!

In size, our cities are small nations. The proposal that New York and Chicago should be erected into statehood is at least a suggestive commentary upon the present aggregations which, we are told, are each to be brought into unity and order thru City planning commissions. The back-to-the-land movement is all right, if you can get back to the city next morning! And this suburbanizing has a lot more to do with the main library building location and site than might at first appear. The main library is frequently much more accessible to the suburbanite than is his own branch library because of transportation facilities to the focal center. It is safe to say that for business, social and educational purposes the municipality of 150,000, drawing upon

its immediate suburban contingent easily totals a population of 200,000. Along with the urge toward these aggregations or congregations there is the manifest will and necessity for preserving and creating higher standards in human interests and relationships as well as in the practical utilities. The public library should be recognized as a signal expression of the idealistic spirit and one of its chief agencies, and should be placed at the center where the greatest day population passes.

The location for the main library building site in respect to the problem of shifting center of business and traffic lines, becomes for each city a case for individual study. The one-street city eventually overflows into side streets, for example, Providence, R.I., Youngstown, Ohio; while villages or suburbs combining under one charter, as Jersey City, may have several centers, or, a large city with special centers already developed, as in Detroit or Washington, may have connected the centers by a boulevard system or by convenient traffic lines. A survey will reveal types to which we may refer our own cases and their methods of treatment will be suggestive.

The commoner site shapes are: the square, the rectangle, and the flatiron. The location may be central, the very heart of central, but the placing of the site or the placement of the building on the site may neutralize this advantage. Where, within the area of any given location, shall the site be? In the middle of the block? On the corner? or in a park or public square? If on a corner, which of four or a dozen inter-sections of the main street? If in a block, face a public square or head a street: secure all the advantages of outlook—of seeing and being seen—thus becoming the beautiful end of a fine vista. If the public square or the center of the block with alleys at side and rear should fail, there is no good reason for declining a corner site in size, say, the quarter of a city block. Thus there would be two hundred feet outlook on each of two streets and 400 feet of sidewalk, for show window in-look. In this position, enlargement must naturally take the course of super-imposed stories.

The importance of a sufficiently large site for the necessarily large building may be emphasized from the points of view of: securing ground while realty values are relatively reasonable; ensuring the platform necessary as an approach; and avoiding the "too much up and down" and separation of allied work, increasing administration costs and time for the public to wait.

Mr. Wheelock of St. Paul, says: "In spite of the fact that we have occupied this building for only six or seven years, our space is wholly outgrown. . . We are in pressing need already of a very large extension. . . In general, I think it would be more economical to allow a 50 per cent margin beyond the immediate theoretical requirements."

Mr. Ranck reports that when the addition to the Grand Rapids main building is completed that city will have an area of about one hundred thousand square feet. This is in addition to a new regional library of an area equal to their present main building.

To date, parks or public squares have been popular library sites and, provided location is fairly central, the future will have reason to bless this choice; provided also, that further allotment of space for enlarging the library may be permitted, for people are beginning to object to having buildings of 40,000 square feet or more dropped on the public lawn.

Most city plans that we have had the opportunity to examine provide a liberal building site for the library in the civic center, and the civic center is so far from the retail district and, in point of time, so remote from realization for many of us that we must consider carefully the advantages thus offered. Provision must be made against suspended animation while awaiting developments or, in case of speedy realization, for the cost of library publicity, etc., until circulation is reestablished, for people will not walk for books. They prefer to pay five times the cost for trash at the circulating library; and as for knowledge, they too easily content themselves without it.

School buildings may go to the outskirts and within a year or two they will create their own communities. The courts, county and municipal offices may crown the civic center on the border of the business districts. Perforce, their clientèle must find them, for laws and ordinances are compelling. Not so the public library. Personal preference and convenience and not compulsion, direct or indirect, will bring the citizens to the library.

The extent and position of the building site is limited not alone by realty values or by the generosity of private donors or tax payers, but is not a little dependent upon the attitude of the local library administration itself, which should stand out for what the library should have at whatever cost of effort or funds.

Library boards must frankly face the fact that if the building site is not in a retail district, an adequate branch of the library must be placed there in rented quarters, and it is quite possible that the cost of such a branch over a short period of years would amount to the difference in the purchase price of the more central location for the main library.

Nor can consideration of building site be divorced from the question of library functions and their adequate housing. The present form of library organization and classification of functions, is presumably the best for cutting down overhead by centralizing the clerical, technical and administrative work. Branch libraries and extension agencies could not exist without the work done for them by the main library organization. Hence with the expansion of the library system, a correspondingly larger main library is required. This is so fundamental that comparisons of the main library with even the largest branch libraries, based upon growth in circulation and reference alone would be entirely misleading as to the real space needs.

Upon building site conditions as to light and air must depend much of the interior arrangement, upon which depends in turn permanently the prompt, efficient dispatch of work, the health and cheerfulness of the staff and the comfort, convenience, and edification of the library's patrons. If light and air cannot be had from the outside, light wells and interior courts must be provided, and these involve loss of area for the actual building, increase in expense for construction, and separation of maintenance departments, thereby wasting time and energy of the workers, and above all confusing patrons in finding their way. Then why not put this inevitable cost into a site adequate for the detached building?

The influence of population congestion upon realty values is well known. According to the 1920 census, out of about five hundred eighteen of the larger cities there are only twenty-two with a population of two to four hundred thousand. Dayton, however, is not among them, nor are Grand Rapids and Des Moines, and much other good library company. While the last census gives Dayton only 152,599 population, our Chamber of Commerce rates it as easily being 210,000 and predicts 300,000 within ten years, figures which I find engineers, architects and financial experts are ready to confirm. For Dayton, therefore and for most of the thirty-two cities between 100,000 and 200,000

population, library building within the next ten years should be on the 200,000 to 400,000 population scale, unless good cause to the contrary can be shown. At least, steps should be taken to reserve adequate building sites in central locations. Cities after reaching the 150,000 or 160,000 mark tend to grow very rapidly. In support of this, witness the growth of Memphis, Tennessee, which was incorporated in 1826 with a population of 500. In the first fifty years, the city increased to 40,000; in the succeeding forty years it quadrupled and is now well over 160,000. Compare this also with the growth of Rochester in the last period from 160,000 to 295,000; or with Indianapolis which in the same time almost doubled itself (160,000 to 314,000); or with Kansas City, 160,000 to 324,000, more than doubling itself. But Akron, Ohio, trebled itself in ten years. Industrial development is the cause: and industrial development may be counted upon to continue.

A glance at the census reports for some sixty-five cities with population above 100,000 shows that only a few have not increased from 10 to 66 per cent in the decade 1910-1920. This being so, libraries in cities of 200,000 population have an important work to do for the future. They may indeed defer their building needs and sacrifice present glory by devising *homely expedients for present work in order to secure the right location and site for the greater library of the future.

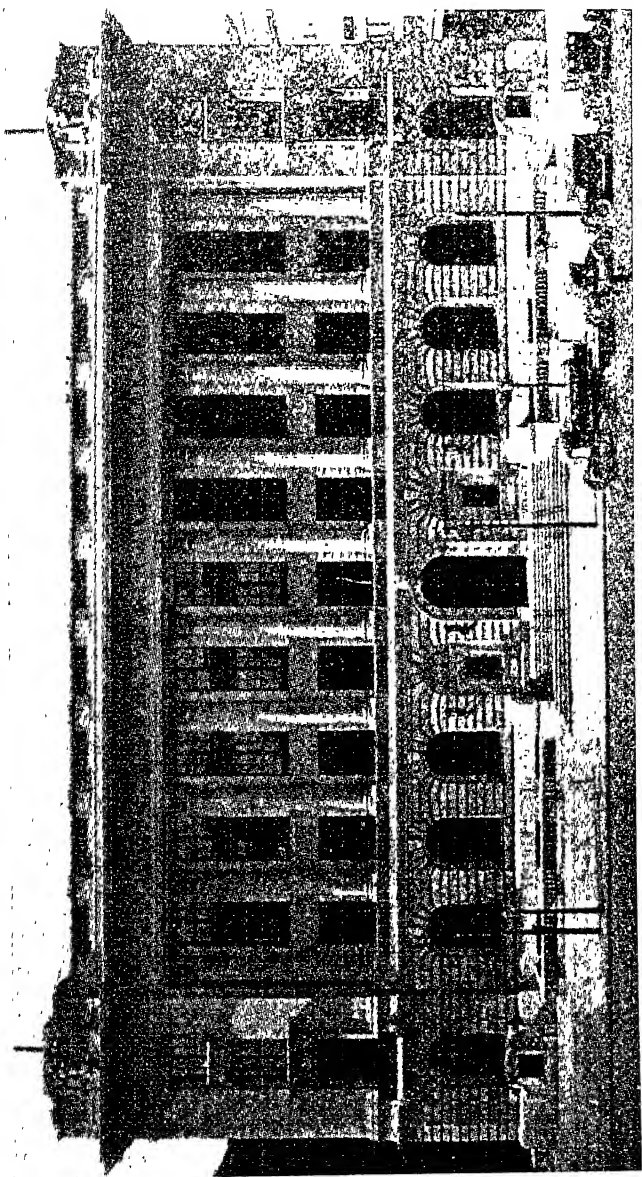
* The Dayton Public Library in overcrowded quarters finds outlet thru a book wagon making twenty-seven stops of one or more hours. For shelter in winter months it is hoped that the election booths of corrugated iron will be available.



LARGE PUBLIC LIBRARIES

Tho size seems a suitable characteristic by which to designate this group, it lacks power to give it unity. Such individuality exists even among public libraries that only a few examples can be selected to represent the older and the more modern tendencies. It would be interesting, for example, to describe the housing of the Boston Public Library, from its opening in 1854, in a Mason Street schoolhouse thru its removal in 1858 into its own building, which became entirely inadequate before the present building was completed in 1895. We select the Copley Square building as the home of the first large public library. Built thirty-five years ago by the architects, McKim, Meade, and White, and tho frequently criticized for its lack of adaptation to modern library conditions, the present building was chosen, with the Indianapolis and Detroit buildings, by a jury of eleven architects to exemplify the best architecture of their class in 1930. The Indianapolis (Indiana) Public Library completed in 1917, by Paul P. Cret and Zanzinger, Borie and Medary associated architects, was awarded the Gold Medal of the Philadelphia Chapter of the American Institute of Architects in 1921. A description of the latest of the three, the Detroit (Michigan) Public Library, designed by Cass Gilbert, and completed in 1921, is also included in this section.

Between and supplementary to these two is a wide variety of libraries, each having its own elements of distinction.



CLEVELAND PUBLIC LIBRARY

RIDGEWAY LIBRARY BUILDING, PHILADELPHIA

The following account from *The Library Journal*, by Mr. Addison Hutton, the architect of the Philadelphia Library Company's building, reveals the restricted idea of service which prevailed in 1876, and illustrates the Grecian-Doric style of exterior.

The governing principles in the arrangement of this building were that special rooms be provided in which to arrange the books, as well as separate reading-rooms for the public, and that no books be obtained except over the librarian's desk, altho a few books might be placed within reach of the public in the main hall and reading-rooms.

Generally, then, it may be said that the building consists of a center, with north and south wings, and that the books are stored in the north wing. The main hall occupies the center, and the reading-rooms are in the south wing.

The main hall is in the form of a cross, the western arm of which is occupied by the entrance and vestibule; the northern—next the books—by the librarian's department; the eastern, by a room for periodicals; and the southern, by the entrance to reading-rooms, and by the staircase to gallery of main hall and to the memorial and directors' rooms in the second floor of south wing.

The north wing measures 32 ft. 6 in. by 71 ft. inside, and in the center is open to the ceiling, a height of 34 ft., having three tiers of galleries, 10 ft. wide, on which the books are arranged in the form of alcoves. A space of 25 ft. by 69 ft. between the north wing and center is also available for the storage of books, and ultimately wall-cases may be put around the gallery of hall. The total capacity for books may be put at 400,000 volumes.

The south wing is occupied by a general reading-room, 32 ft. 6 in. by 71 ft., with a 20-ft. ceiling. It is lighted by three large

windows on each of the west, south, and east sides, is provided with two open fireplaces, and has access at either end to retiring-rooms, lavatories, etc., for ladies and gentlemen.

In the angles of the central portion of the building not occupied by the main hall are a room for receiving and cataloging books, a private room for the librarian, and two smaller reading or study rooms. These four rooms are each 22 ft. square and 14 ft. high, and are well lighted by two large windows each.

The length of the arms of the main hall is 85 ft. north and south, and 60 ft. east and west, and the width 35 ft. The height of the ceiling is 46 ft. There is a broad gallery, or, more correctly perhaps, a second floor, around the hall at a height of 15 ft. from the floor, from which rise 24 Ionic columns and pilasters, which carry the ceiling. Light is introduced by a clerestory arrangement over the interior cornice, by which means an abundant supply of light is obtained without leakage from rain or snow, to which the ordinary level skylights are so subject.

Externally, the west front on Broad street shows the arrangement of center and wings, the former adorned with eight columns and the latter with four each. The back, or east front, is of similar general design, but without the columns, and the north and south wings show a tetrastyle arrangement of pilasters with pediment over.

The Grecian Doric was the style named for the building by the late Dr. Rush, and the following are the general dimensions: Diameter of column at base, 5 ft.; height, including capital, 30 ft.; intercolumniation, 12 ft. 3 in.; height of entablature, 10 ft. 6 in.; angles of pediments, 13 ft. The columns stand on a basement 8 ft. high, and the principal floor is one step above this. A broad flight of steps leads up to the entrance in the center of the building.

The total length, north and south, is 220 ft.; east and west, over portico and basement, 112 ft.; and the height from ground to apex of central pediments, 60 ft.

There is a well-lighted basement under the whole building, with a ceiling 13 ft. high, to which there is direct entrance from the back of the building. It will be heated thruout by steam, supplemented by open fires in all the reading-rooms. It is built of Cape Ann and Quincy granite, with iron floors, ceiling, and roof, and may be said to be fire-proof, tho the flooring and finish, for the sake of comfort, are of wood.

BUFFALO, NEW YORK, LIBRARY

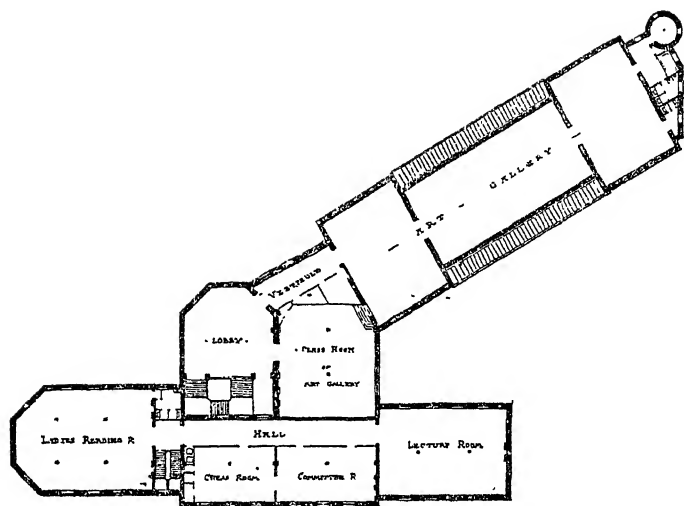
The Buffalo Library is of a style which suggests Richardson's work, and it is perhaps significant that Cyrus Eidlitz, the architect for this building, was the son of Leopold Eidlitz with whom Richardson worked on the State Capitol at Albany.

The building is distinctive for the utilization of a triangular plot and for its interior arrangement, the work of J. N. Larned, the librarian, and tho outgrown is still in use. The following article is from *The Library Journal*.

There is a sketch of Mr. Larned in Volume III of this series, *The Library and Society*.

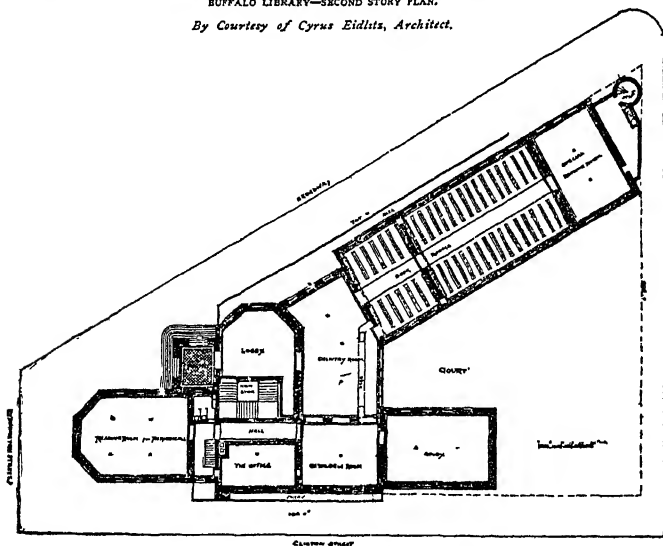
This new building was opened in January, altho not quite finished. We take pleasure, here in acknowledging the courtesy shown us by the architect, Mr. Cyrus Eidlitz, who kindly furnished the drawings for the plans given. The *Buffalo Express* of January 2 describes the building thus:

"The building has four principal floors, each given up to a separate society, except that the library occupies, besides the whole ground floor, parts of the basement and the second floor. The visitor on entering the building must not expect to find marble finishings or elaborate carvings. A building of such fine proportions and perfect adaptability to its purpose needs nothing wasted on it by way of ornamentation. On passing thru the porch and halls on the first floor the library delivery room is reached, a lofty room, 40 by 56 feet in dimensions, furnished with the librarian's extensive counters, and a few cases for curiosities placed here and there to prevent the appearance of emptiness, for this is not, as in the old library, a reading room or a store room for books. The book stacks are in an adjoining room on the Broadway front. This grand room, 50 by 138 feet in size, with ceiling 21 feet high, contains most of the 56,000 books owned by the library. They are arranged in two-



BUFFALO LIBRARY—SECOND STORY PLAN.

By Courtesy of Cyrus Eidlitz, Architect.



THE BUFFALO LIBRARY—MAIN ENTRANCE FLOOR.

By Courtesy of Cyrus Eidlitz, Architect.

sized cases or stacks of iron with movable shelves. Seven feet from the floor is a flooring of skeleton iron and glass that allows the passage of people in search of books, but does not shut out all the light. At some future time a second false floor or scaffold will be put in and the books can then be stored to the ceiling. The public are not allowed access to the books in this room, but are kept back by two rows of skeleton iron structures that form a long hallway the whole length of the room.

"On the Clinton Street side of the delivery room and connected with it by large archways is the catalog room, 40 by 31 feet, where, besides all the catalogs, are kept cases devoted to books and pamphlets by Buffalo authors, besides local reports of all descriptions. Farther down the Clinton Street side comes next in order the study room, 50 by 32 feet, which contains all the books of reference. A fine room on the Clinton Street side between these last two rooms and Washington Street is set apart as the superintendent's office. But the most airy and pleasant room on this floor is without doubt the reading room, next to Washington Street. Here is a room 52 by 38 feet, with the angle towards this street considerably pointed, as is the case with the Broadway angle of the delivery room, and a fine light coming in from great windows on three sides. The center of the room is furnished with a large case for newspapers and other periodicals, with compartments large enough for each when partly folded, thus economizing space and avoiding the staring paper cases usually seen. Easy chairs, tables, and lounges give the room an air of cosiness, and the great room will accommodate a large number of readers without inconvenience. A library assistant will be in this room constantly to keep the papers in order and render other needed assistance.

"On this floor as on the others there are abundant toilet accommodations, and modern conveniences ornamental as well as useful, such as grand fireplaces in all the principal rooms, whose massive terra cotta finishings add much to the appearance of the rooms. The building is finished almost entirely in the finest polished oak, the floors of the outer halls and lobbies are laid with tiles, while the main library floors are covered with corticine of a thickness not before used in Buffalo, rendering it entirely noiseless. Another pleasing feature of the library is the finishing of the walls and ceiling. Mr. Eidlitz, the architect, made a close study of the colors to be used. He has selected

for the delivery room terra cotta as the principal color, and for others various combinations of cream, orange, and brown are used. The walls are of rough finished plastering, and the colors are laid on with fresco paint.

"The second floor is given up to the library for the whole of the Clinton Street front. Here is a lecture room, a committee room, conversation and chess room for gentlemen, and a private reading room for ladies, just above and of the same size as the newspaper room below. These rooms will be given an extra home like appearance, so that the idea of a literary clubhouse may be carried out as nearly as possible. The remainder of this floor will be occupied by the Fine Arts Academy. The third floor is entirely occupied by the Buffalo Historical Society, which has separate rooms for library, meetings, oil paintings, and relics. The latter room will also probably contain the library of the late Dr. Lord. Spacious rooms for the janitor are situated just above the third floor. The basement is to be occupied by the Society of Natural Sciences, with a room or two for a bookbindery connected with the library.

"The noble structure is due to the talent of Mr. C. L. W. Eidlitz, the architect. But how can it lay claim to the high distinction awarded to its internal arrangement, that of being the best appointed library building in the country? This question was asked on the spot of a gentleman who has studied libraries somewhat, and has seen most of the best ones in America. He replied at once that it was because the society was wise enough to follow out implicitly the ideas of the superintendent, Mr. J. N. Larned. He had made of the library system such a profound study that he knew the excellences and defects of every library of any pretension in America, and he was also acquainted with the Old World models.

"'I was in Baltimore not long ago,' continued the gentleman, 'and I had occasion to prove the truth of what I am saying. That city has a magnificent library building, finished in marble and sumptuously appointed, but for all that it is a dead failure as a library. I asked a gentleman to show me about, and as I inspected the arrangements I fell to finding fault. The gentleman defended the plan until he saw I was posted, and then he gave up and confessed that the defects of the building were great, and that they had resulted from failure to consult the superintendent. The people in charge of the work did not know that library building was a science.'"

BOSTON PUBLIC LIBRARY

Most descriptions of this building attempt to include its paintings and other decorative details, but this account by C. Howard Walker from the *New England Magazine* is confined largely to the architectural features, and is quoted almost in its entirety.

Mr. Walker is a Boston architect, editor of the *Architectural Review*, lecturer and writer on decoration and architecture. He was designer of the plan of the St. Louis Exposition and member of its Board of Architects. Since 1913 he has been director of the School of Fine Arts, Boston, and received the honorary degree of Doctor of Fine Arts from the University of Pennsylvania in 1921.

A mediæval scribe with a weighty volume in his hand was asked why he seemed unconscious of its weight and walked with such pride; he answered as he glanced at his burden: "Because I am serving so excellent a master."

Boston, with equal pride, serving the same master, Literature, has erected a building to receive its public library worthy of the treasures it contains. The inscription upon its frieze, "Built by the people and dedicated to the advancement of learning," voices the public spirit which has seen fit to provide for its library the only palace in a city of nearly half a million population. It should be characteristic of a sovereign people that what is for the good of the entire community should express the best of which the community is capable, and should have great dignity and beauty; but this seldom occurs, especially in America, and the few instances where the achievement has been worthy of the effort are so unusual and so notable that they deserve careful attention. Of these unusual and successful results of the action of public spirit and pride, the Boston Public Library is one of the best examples.

The original competition for designs for the new library not being thoroly satisfactory in its results, the trustees, after

careful consideration, selected Messrs. McKim, Mead and White as architects. They had a difficult problem before them from the first. Piles had already been driven for the foundations of a building of very different plan, and with a tower, and these had to be supplemented. The soil in which the foundation was to be laid was treacherous, and after these difficulties were overcome, the problem of choice of architectural style had next to be decided. There has been for some years amongst American artists a steady tendency toward a preference for buildings in classic styles, that is to say, in the styles which employ the classic orders of architecture, and which have for their prototypes the buildings of Greece and Rome and of the Renaissance inspired by the earlier Roman architecture. Among the chief characteristics of these styles is that of simplicity rather than picturesqueness of mass, the use of light-colored materials, and the accenting of the horizontal rather than of the perpendicular lines of composition. The architects of the new library elected to design the building in conformity with these precedents, rather than to be influenced by the proximity of the Museum of Fine Arts, Trinity Church and the Old South Church, all picturesque buildings and comparatively dark in color. While this course isolated the library and made it of totally different architectural character from its neighbors, it permitted the employment of a monumental style and secured consequent impressiveness of effect. There are so few monumental buildings in America, so few undisturbed simple roofs and repeated single motives across façades, that such a design, in the process of its construction, was little understood, and the amount of unintelligent criticism upon the library which was gratuitously proffered while its façade was unfinished was enough to have permanently condemned an inferior building. It is interesting to find that this criticism has grown less as the building approached completion.

One fact is especially worthy of notice: that is, that the great simplicity of the front, consisting merely of a strongly marked first story carrying an arcaded second story, which in its turn was crowned by a rich cornice, the whole unbroken for two hundred twenty-five feet, prevented the size of the building from being appreciated. The individual parts were upon such a scale that, until detail appeared, there was nothing by which to gauge relative size. The same uncertainty which is felt in the interior of St. Peter's was characteristic of the library façade in its early stages, but as the details over the entrances,

the lettering in the tablets and frieze, and the printer's marks in the medallions were cut, the building grew in apparent size. In any work of architecture or of painting, the actual size of the object is made apparent by some detail with which one is familiar and which varies but little in its own relative size to man—and especially in classic architecture size can be gauged by the sculpture, which in most cases is based upon the so-called heroic proportions, that is of figures eight or ten feet in height. For this reason the two figures over the entrance door have done more to give scale to the Public Library than has any other detail; and when the groups are in place upon the pedestals in front of the entrance, the full dignity of proportion of the façade will be felt.

The first conception of the front was suggested by the design of the Bibliothèque Ste. Geneviève in Paris; but the two buildings have only this in common, that the chief motive in each is that of a noble arcade in the second story, and that tablets containing the names of writers, painters, architects and others appear in corresponding positions in each. The library in Paris has one façade only, while the Boston library has arcaded ends. It is in these ends that the difficulty of treating a modern building with the simplicity of classic motive becomes apparent. For, while the thirteen windows in the front all open into the great reading-room, at the ends the rooms are smaller, two stories instead of one occur, and the space under the arches being much too large to light inferior rooms, they are filled with black Levantine marble, in which windows are cut where needed. The dark spaces thus obtained are covered with grilles, similar to those in the reading room windows. The effect of large openings at the ends is thus gained, but the method seems unsatisfactory as evading the problem rather than solving it. Above the arcade, the frieze is not a frieze proper, but a long panel containing the inscription mentioned.

The cornice is a distinct departure from any of the established classic models. The great simplicity of the front, coupled with the item of expense, would prevent the use of the heavily modillioned cornice of the Corinthian order, while the Tuscan cornice would be too severe. The architects therefore conceived the idea of enriching a plain cornice by fluting the fascia, and giving scale by exaggerating the size and width of the dentils. The result is excellent.

The entire building is raised upon a broad platform six steps in height. Above the entrances at the bases of the three central windows are carved cartouches with the seals of the state, the city and the library.

Ascending two more steps and entering beneath the three arches which open into the outer vestibule, the keystone of the center arch having the head of Athena carved upon it, we find ourselves, after passing the wrought-iron gates, in an open vestibule with Tennessee marble walls and arched ceiling.

The three doors opening into the inner vestibule or hall are to be of bronze and are to be the work of Daniel Chester French. The marble architraves of these doors are designed from those of the Erectheion at Athens. Upon entering the first story hall, the grand stairway is seen leading directly to a broad landing half way up, then dividing into two flights right and left and turning toward the front.

The hall between the entrance and the stairway has a barrel vaulted ceiling supported by stone piers, from the caps of which spring lateral arches penetrating the sides of the barrel vault and opening into side aisles which also have vaulted ceilings. These ceilings are covered with marble mosaics of white and delicate brown tesserae. The designs are of Renaissance scrolls surrounding cartouches or tablets with the names of prominent Americans, Emerson, Adams, and others. The main vault is decorated with an interwoven vine upon a trellis.

The floor is paved with marble, with bronze intaglia representing the signs of the zodiac. Over the staircase the vaulted ceiling becomes a triumphal arch of Siena marble, richly caissoned, and from this point the staircase, excepting the steps, is built of the most richly colored and figured Siena marble in large sheets. On either side of the stairs at the landing are two massive pedestals supporting couchant marble lions facing each other, by Louis St. Gaudens, and dedicated respectively to the officers and men of the Second and Twentieth Massachusetts Volunteer Infantry who fell in the Rebellion. Upon the front of the pedestals are the names of the battles in which they were engaged. These lions are not sufficiently monumental for their surroundings. They are over-detailed, and their poses are not especially dignified. It is not an easy matter to model any figure so that it will take its place as a part of a whole and not be isolated from the portion of the building it ornaments by reason of its realism. Sculptors have repeatedly found

that conventional statement of a few facts of anatomy, a few simple planes of form, produce a better ensemble than careful realistic detail, and for that very reason, the Egyptian Sphinx and the Etruscan lions in the museum of the Vatican have much more dignity than these lions of St. Gaudens. It may be a realistic truth that lions have thin sharp chins, and manes falling in strings rather than masses; but these details detract from the apparent power or dignity of the sculptured lion, which belongs to an ideal race, not an actual one.

At the landing are double oak doors leading upon a balcony overlooking the interior court, while above are arched windows amply lighting the staircase hall. Upon the sides of the staircases ascending from the broad landing are eight high arched panels, four upon either side of the staircase hall, which are to receive decorative paintings by Puvis de Chavannes—some of which were exhibited in the Salon of the Champ de Mars in April. There has been regret expressed that a foreign artist should have been given this commission while there are able Americans, but the fact remains that very few, if any, American painters have been trained, or had the opportunity to be trained, in decorative work of this character, and while the last decade has shown that there are men amongst their ranks who have strong decorative sense and would be capable of much excellent mural work, the importance of these panels warranted the trustees in selecting an artist who it is acknowledged is one of the greatest decorative painters of the century. In addition to this, local or even national pride, while praiseworthy, is the last thing to be considered in the choice of works of art. Certainly if America or Patagonia had produced an abler man than Puvis de Chavannes, that man would have been chosen. It remains to be seen, however, whether the scheme of color will be in harmony with the very warm and rich setting it will receive. Puvis de Chavannes' work is usually in delicate tones, with a predominance of blues and grays, which would not tone with the Siena walls of the staircase hall. It is true that the latest of his smaller pieces of decoration are more robust in drawing and warmer in color than has been his previous work; but whether he will appreciate in Paris the conditions under which his work will appear in Boston gives occasion for an anxiety which it is to be hoped will be allayed by the result. The ceiling of the staircase hall is richly caissoned and tinted in pale blue and ivory.

The staircase leads to a broad gallery with plain vaulted ceiling, separated from the staircase hall by an arcade of four graceful arches, supported by Corinthian columns of Siena marble. At either end the gallery is continued into so-called lobbies, that on the right leading to the Waiting Room; that on the left to the Room for Relics. The waiting room lobby, the staircase hall and Bates Hall ceilings have been decorated by Mr. Garnsey. The decoration is in Pompeian style, but in lower tones than is usually found in this work, rich and warm and very delicately drawn. The corresponding lobby at the other end of the gallery is decorated by Mr. Joseph Linden Smith in stronger key of color and with more use of rich blues and greens and gold in a Renaissance style.

The gallery opens directly into the great public reading room or Bates Hall, which extends across the entire front of the building upon the second story. This room is one of the most important rooms architecturally in the world. It is two hundred and eighteen feet long, forty-two and one half feet wide, and fifty feet high. The ends of the hall are semicircular in plan, with semi-domed ceilings with broad ribs, guilloched, and with rich caissons. The great length of the central mass, which, if its elliptically arched ceiling has been uninterrupted, would have appeared monotonous, is divided into three bays by heavy arches carried on wall piers of great projection. These bays in the ceiling are again subdivided by guilloched ribs corresponding to those in the end domes, and there is a double row of very richly decorated caissons between these ribs. The ceiling is therefore a very rich and impressive one in light and shade.

The wall piers supporting the three principal arches, and the pilasters with Renaissance arabesques supporting the intermediate ribs, are of Ohio sandstone, as are the wall arches over the thirteen large windows on the east side and over the corresponding spaces upon the west wall, and as are also the frieze and cornice, upon the former of which are the names of classic authors. The thirteen large windows, which are those forming the principal feature of the façade, begin at the height of ten feet from the floor. They are filled with wooden grilles (the intention was to have these grilles of bronze) of the conventional Roman type, which can best be described perhaps as a pattern of squares subdivided by diagonals and by horizontal and perpendicular lines, as is the English Union Jack by the

St. George's and St. Andrew's crosses. These grilles, while excellent from the exterior, are out of scale with the interior, and from their very austerity and monotony injure the effect of the rooms. The adoption of a grille somewhat of the character of the Spanish *reja*, with a rich upper portion, could be made to have scale with both exterior and interior.

The southern semicircular end has four windows corresponding with those on the front. In the northern end two of these windows are omitted, and the wall space thus obtained is to be decorated by James McNeil Whistler.

The ends are to be separated from the center of the hall by two richly sculptured screens fourteen feet high, the spaces thus reserved to be used respectively as Writing Room and Card Catalogue Room.

The pavement of the hall is of terrazzo mosaic, alternating with large marble slabs. The base is of Verona marble, above which to the height of eight feet are dark English oak book cases to hold books of reference, catalogs, encyclopædias, etc. Several thousands of these volumes will be accessible to all comers without the necessity of using cards. The main entrance from the gallery has above it a very beautiful balustraded balcony opening from the landing half way up the stairs to the third story. The center spaces of the end bays are occupied by marble mantels of corresponding design, and the end spaces are occupied by the doors to the Waiting Room and the Relic Room. These doors have on either side heavy Corinthian columns of green serpentine, with bronze caps carrying an entablature of Belgian black marble. These monumental architraves are quite out of key of color with the entire hall.

While it is not the intention of this article to make carping criticism upon so thoroly satisfactory and noble a piece of work as is the Boston Public Library, and while the writer realizes how very easy it is to suggest changes in a completed façade or room, the Bates Hall is so exceptional a success that any disappointment in regard to minor details is aggravated by the desire to have the result perfect.

The hall is cool in color, gray, and without rich contrast, with the single exception of these two doorways, which in consequence seem imported and not indigenous or a part of the design excepting in form. Perhaps this was intentional. The ceiling, noble as it is, would gain much by richer color and by

gold—and with the wall panels filled with decorative painting such color of the ceiling will be very necessary. The furniture of the room is not sufficiently dignified. The tables are massive enough, but the chairs are too slight and have too much the character of the country house piazza type. Apart from all this the Bates Hall is a very noble, dignified room, worthy of its purpose, and, so far as we know, the one interior in America that has adequately expressed the civic pride of a great city.

The Waiting Room has a wooden beamed ceiling of oak, with a high fourteen-foot wainscot of large perpendicular panels divided by fluted pilasters with Corinthian capitals, with a rich entablature with eggs and darts and dentils. At one side is an Italian deep-red porphyry mantel, and the door columns and entablatures, similar to those upon the other side of the door openings in Bates Hall, are in thoro harmony with the rich color of the room. Above the wainscot the wall is to be crowned with Edwin Abbey's frieze of the "Legend of the Holy Grail." Judging by the portion of the work which was exhibited at the Chicago Exposition, this frieze promises to be the most notable wall decoration ever painted by an American artist, and to be equal to any piece of modern work. The beauty of its composition and of its color, its perfect adequacy of expression, and the ability shown to weave many figures into a harmonious whole and not to leave them in isolated disconnected groups—an ability that few artists possess, and which was hardly to be expected of the follower of any modern school of art; the adequacy of idea, likewise lacking in most recent work, and the delicacy of drawing and deliberate distrust of sensational technique—all mark it as a very unusual and excellent example of mural decoration. When this frieze is in place, Boston will possess a room which can be compared favorably with many of the rooms abroad which form Meccas for the student of art.

The room to be used as a museum for historical relics is at present undecorated.

From the northern lobby an enclosed staircase of sandstone leads in two long straight runs, with an intermediate landing opening upon the balcony in Bates Hall, to the third or special library floor. The long hall corresponding to the second floor gallery below is to have its walls decorated by John Sargent, the subject being the History of Religions.

The building is around a large central court, across which no short cut could be taken. The public portion of the building is in front of this court; the stacks, six stories in height, are around its three sides. None of these stack stories is on a level with the delivery-room floor. Manifestly the books could not be carried by boys to and from these stacks, and in their place a magnified cash carrier system has been adopted.

The card catalog is in Bates Hall, with two or three assistants in charge. To the delivery room is but a step. Behind the delivery desk is a room where assistants receive and distribute books or return them to the stacks. An indicator of books out is constantly kept, and any applications for these are at once returned. If the book is in, the slip is put into a pneumatic tube and sent to the part of the stack where the book is shelved. Each floor has its staff of messengers who receive the slips, get the books called for and put them in a carrying basket. These baskets are then, by cable operated by electric dynamos, sent to the distributing room. The baskets are returned as easily as sent. In this way a library capable of accommodating two million volumes is to be operated. Thus far the results have been satisfactory.

The central court, which is to be open to the public, is one of the most beautiful features of the library. It has an arcade similar to that in the Palazzo Cancellaria in Rome by Bramante around three of its sides, and in the center is a lawn surrounding a fountain. The proportions of the Bramante arcade have always been recognized as very subtle and beautiful, and tho used in a very different manner than in the original at Rome, the charm of carefully studied architecture is still inherent in these columns and arches. The walls above are in a mottled brick of warm brown; and the windows upon three sides, which light the special library gallery, have deep reveals and are very simple and dignified. Here, as elsewhere thruout the building, the restraint of noble architectural motive is apparent. In the warmth of summer this cloister, with exotic plants in great vases between its columns, will be in shady seclusion, and, with a fountain playing within a few feet, will form an attractive open-air reading-room.

As a whole the Boston Public Library is undoubtedly one of the most beautiful buildings in America. The noble dignity of its main façade is in instructive contrast to the bedecked and bedizened architecture with which we have so long been familiar.

The disregard for surrounding buildings can be readily understood when the fact is taken into consideration that no two of these buildings are in harmony with each other; and when Copley Square is made into a balustraded park, each side of the square will then be separated from the other sides, and can be considered upon its own merits.

As years pass by and associations cluster around the new center of learning, it will be appreciated more and more that the library is worthy of its purpose. America is one of the richest countries in the world, but she is long in learning how best to expend her riches. There remains yet the petty thrift which was a virtue and a necessity with our forefathers, but which is no longer a necessity and has consequently ceased to be a virtue with us. Few of our cities have awakened to the sense that they are larger in population and richer in purse than cities abroad which have erected buildings the fame of which is world-wide. Forty years ago Fergusson's *History of Architecture* frankly stated there was no architecture worth study in America, and even the latest editions of this work devote but a small portion of the volume to American work. The reason for this is very evident and can be summed up in a few words. With the exception of our business buildings and private houses, the architecture of this country has been obtained by two methods: first, the parsimonious employment of inefficient architects on the score of economy; second, the equally parsimonious institution of government and municipal architects' offices in close relation with politics. The beauty of the Boston Public Library is due to neither of these methods, but rather to a recognition of the importance of necessary expenditure in order to obtain work of exceptional character.

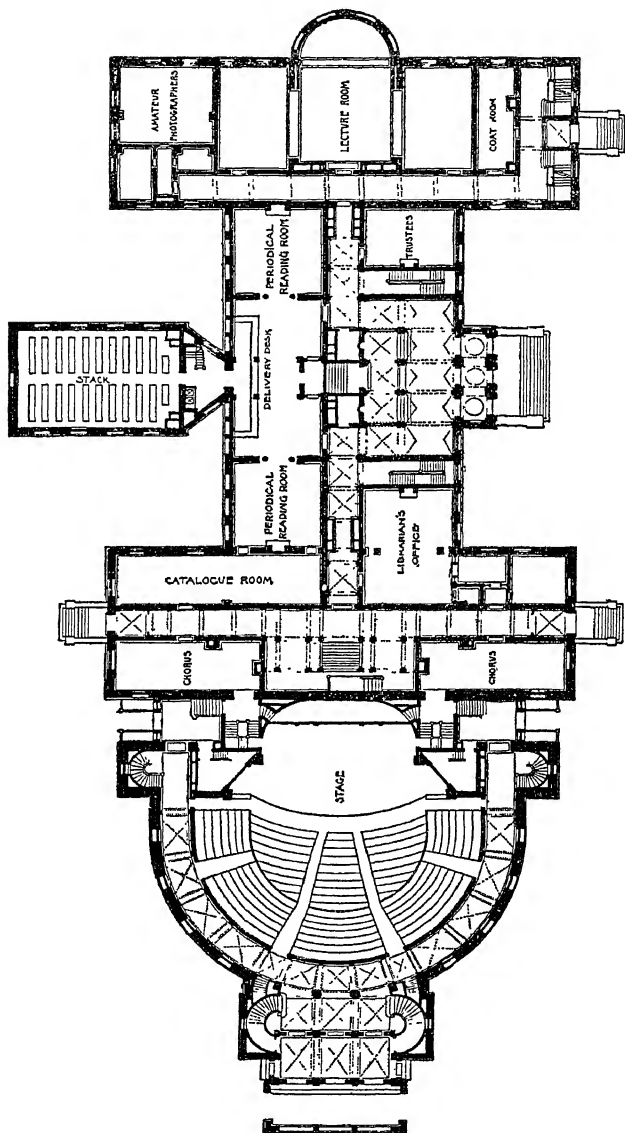
As has been said, the library is worthy of its purpose. It is as great an object lesson in dignified monumental architecture as were the finest buildings at the World's Fair, and it is a permanent object lesson. It is one of the few examples in this country which as years go by will prove to the people that to obtain the best at some great expenditure is worth the cost, and it is to be hoped that it is the first of a number of equally notable buildings.

CARNEGIE LIBRARY OF PITTSBURGH

The building of the Boston Public Library completed the same year, has more fame than has the Pittsburgh library, described in the following excerpt from an account of the dedication exercises. But this was the first large Carnegie library building erected. It is now merely a part of the more extensive Carnegie Institute building, containing also an art museum, a natural history museum and a concert hall; but it has been found adapted to twentieth century library requirements.

The beautiful building, which was thus opened to the public, had its inception on November 25, 1881, when Mr. Carnegie wrote to the mayor of Pittsburgh offering to expend \$250,000 upon a free library provided the city would appropriate not less than \$15,000 a year for its support. This offer was not accepted at the time, owing to the state of the municipal finances; but in February, 1890, Mr. Carnegie renewed his offer, proposing to give \$1,000,000 for the establishment of central and branch libraries, if the city would appropriate \$40,000 annually for their maintenance. An ordinance accepting the gift was passed on February 25, and a library commission was promptly appointed. The commission set apart \$300,000 for branch libraries, and appropriated \$12,000 for prizes for competitive designs to be submitted by architects. Out of the many plans received, the one by Longfellow, Alden and Harlow, of Pittsburgh and Boston, was chosen, and the contract for its erection was awarded on May 8, 1893. It was found that \$100,000 additional was required to carry out the design, and this sum was promptly added by Mr. Carnegie to the \$1,000,000 previously given.

The building comprises a library, music hall, art gallery, and museum. It stands on terraced ground at the East End entrance to Schenley Park, overlooking a picturesque ravine, and is a granite structure something in the Renaissance style. On the front is a stately *porte-cochère*, triple arched and finished in



CARNEGIE LIBRARY OF PITTSBURGH—FIRST FLOOR PLAN

stone balconies and surmounted by chandeliers of electric lights. The forward part of the building is semi-circular in form, with a dome-like roof. From either side of this frontage rises a stone tower 175 feet in height.

The walls are of Cleveland gray sand-stone and the roof is covered with red tile. The building is encircled by a frieze in which are inscribed the names of famous men; upon the music hall, composers and musicians; upon the art galleries, artists, and upon the library and science wing, authors and great scientists. Over the library entrance is the legend "Free to all the people." At the rear are L wings. About midway on the east side rises the bookstack, in a tower-like structure of six low stories. The whole building gives the effect of strength and repose, from the sweeping lines of the center and the beautiful curves of the front to the pyramid summits of the twin campaniles with their delicate arches.

The interior of the building, roughly speaking, is divided into four sections. Toward the front the entire width is taken up by the music hall, behind are the art galleries, back of these the library rooms, with an extra entrance toward the park, and in the rear, toward the conservatories, are the rooms devoted to the various scientific societies. Entering the visitor finds himself before the huge mahogany doors, every panel of which is hand carved. As they swing open, the colonnaded hall and vestibule are seen. Groined or vaulted ceilings give an imposing air to this threshold, and the delicate coloring in the panels of the ceiling give a very artistic finish to the big hall and vestibule. This entrance gives admittance to the beautiful music hall, with a seating capacity of 2100 and a stage capacity of 200.

The art rooms on the lower floor lead to the periodical rooms of the library department. These are really a single long apartment, cut into two by colonnades. At each end there is a huge projecting antique mantel and fireplace finished in plaster and marble. Thruout on the lower floors the door-jambs, window-checks, etc. are made of Keene's cement, and the woodwork is all of polished oak. To the left of the periodical room is the stack room with a book capacity of 250,000 volumes, and supplied with speaking-tubes and book-lifts. Cataloging rooms, retiring rooms, and store rooms take up the other space.

The library entrance is on the park side. As one enters between fine mahogany doors, a broad marble staircase of pink

Knoxville marble, from Tennessee, leads up to the reference room on the second floor. In the grained and colonnaded vestibule, on the stairway and in the reference room, the same delicate ceiling and wall decoration is found. The reference room has a ceiling of obscured glass. Above each of the two hundred panes is an incandescent light, which throws an even and diffused effulgence on the readers below. On the second floor all the windows and doors are of polished mahogany.

Outside the reference room, and running toward the music hall end, is a corridor, which for color work, finish, and beauty of perspective is the gem of this fine building. It is grained and vaulted, and the coloring in the panels is beautifully delicate in buff, cream, green, blue, and gold harmonized. On one side extends the reference room, and on the other are smaller rooms for special collections or study, one of them being occupied by the music library of nearly 2000 volumes, comprising the collection of the late Karl Merz, which was bought and presented to the library by a number of citizens.

The circulating department—naturally the center of the library's activity—is on the first floor, opening back of the delivery desk into the stack wing, the lower stories of which are reserved for circulating books, the upper stories for reference books. At either end of the lobby of the circulating department are the periodical rooms, one for scientific and technical periodicals, the other for those of a popular and literary character. The reference reading room on the second floor is separated from the stack room by the desk of the reference librarian, which it is planned to make a bureau of information. In the limited time for preparation the opening of a children's room was deferred, but this it is hoped to develop into one of the most important departments of the library; and it will be established as soon as possible.

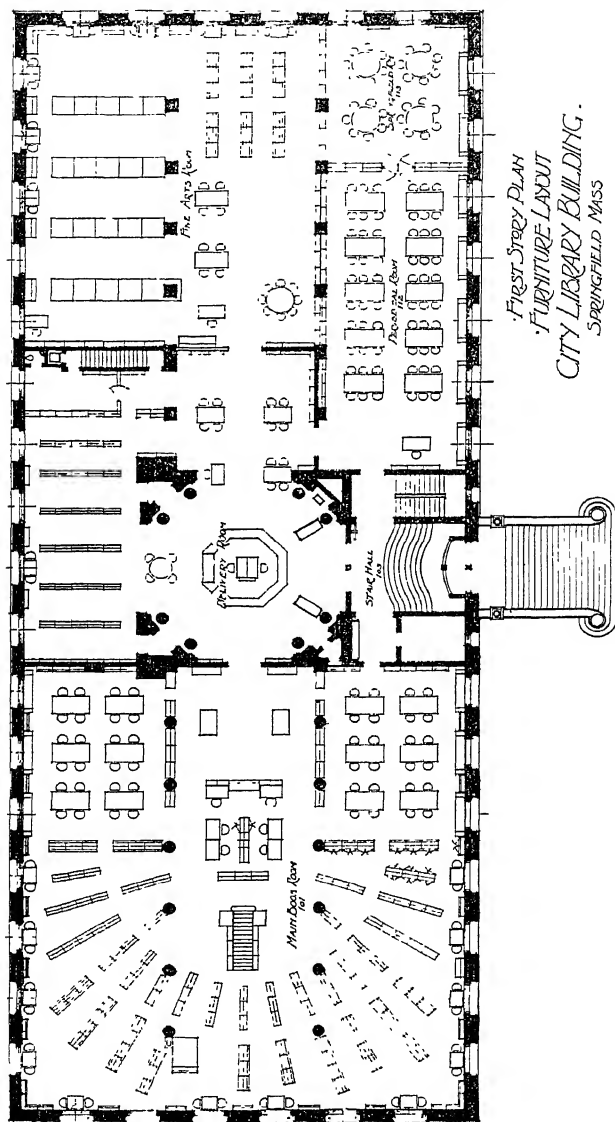
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SPRINGFIELD, MASSACHUSETTS, CITY LIBRARY ASSOCIATION BUILDING

It was while librarian in Springfield that John C. Dana proposed his "loft" plan of library building, and tho he left there in 1902, when the new building was opened in 1912 we find that the "dominant feature of the library plan" is one large room which combines a radial system of stacks with reading and reference facilities.

An editorial in the *Library Journal* shows its significance. Following this editorial is a description of the building taken from the account of its opening.

The Springfield (Mass.) library building proves almost a new departure in library architecture in the planning of its interior arrangements and should be carefully studied in the planning of future buildings for other cities. Thanks to the close cooperation of Librarian Wellman and Architect Tilton, two notable achievements have been accomplished, the effective utilization of large spaces in combination with ease of administration and convenience for the reader. There are no forbidding wastes of staircases and entrance halls, but instead direct access to the delivery desk under the central dome and thence to the "bookroom," where an attendant at once greets the reader from the desk, and points out or shows to him where the desired book is to be found. The radial arrangement of shelving at the end of a rectangular room is an innovation which has justified itself in practical experience, and the placing of the stacks for less-used books in the basement immediately under the bookroom has decided advantages. By the use of two galleries around the main bookroom, offices for the librarian and the working force are provided for without lessening the height of the main room or cutting off the supply of light from overhead. Every visitor to the main floor of the library must pass the delivery desk on entering and on leaving the library, but this is happily managed without sense of restraint. On the other hand, separate access



is provided for the newspaper room on the one side, and for the children's room on the other side of the main entrance in the basement; and as both these rooms should involve a special attendant, there is no administrative waste to offset this convenience. The result has been accomplished at a minimum of cost, and the whole effect is especially worthy of study.

THE BUILDING

The general architecture of the library building is Italian Renaissance. The base of the building is pink granite from Grand Isle, Me., and the stone, which is the principal material used, is white marble from Rutland, Vt. White terra cotta makes an appropriate trim. The roof is a green tile. The interior can be generally characterized as a building of beauty, and dignity, yet of warm attractiveness. It is a home of books, with many immense rooms and corridors, but in spite of its great proportions has for the visitor an inviting atmosphere that makes him feel at home. The main entrance is reached by granite steps. Handsome standards of solid bronze support large ground-glass globes either side of the doorway. Two double bronze doors with many intersections, making an art window effect, give entrance to the building.

A visitor who is seeing the library for the first time, when he has pushed back the swinging oak doors that lead from the entrance hall into the rotunda, will feel an irresistible impulse to look up. It is an impulse that the visitor does well to yield to, for the rotunda, with graceful columns, extends to the top of the building, where it culminates in a glass dome. The glass is amber-tinted and lets in a beautiful mellow light that will be found of great convenience in the delivery department, which is to occupy this part of the building. The walls of the rotunda are a light gray, to match the Caen stone of the columns and ornamental work. In a niche between two of the columns to the right of the door as one enters is a bronze bust of Andrew Carnegie, as a mark of appreciation of his generosity. Behind this is a tablet which reads: "City library, this building given by Andrew Carnegie and citizens of Springfield." Shelves for fiction are located in a room at the rear of the rotunda. Wide aisles give easy access to these shelves and there are convenient tables for reading.

Rice hall, so called for William Rice, librarian from 1861 to 1897, is at the west of the rotunda and is the large reference and reading room of the library. Roughly speaking, this department is divided into five sections. At the center is the business section, in which the desks of attendants are located. The mezzanine floor, which holds many bookcases, is at the west end of this room, and makes two more sections for the department.

From the mezzanine floor, as a continuation of the staircase leading to it, is another staircase by which one may reach the second floor. On and under the balcony, or mezzanine floor, is shelving for 100,000 volumes. Direct light falls upon the face of each book rack, making superb light for every part of the room. The shelving on the floor is arranged in radiating form from the desks of the assistants, so that it is possible for these assistants, at all times, to see every point in the room. Thruout, the idea has been to form this room so that the reader and library attendants might be in close contact, for the assistance of the reader, even tho the room is so large.

On either side of the center section of this reference and reading room are large spaces into which readers may retire for the use of books.

At the east end of the building is the library of fine arts. This room is also lighted from the roof by means of a skylight of amber-colored glass. Glass book cases, for rare books, stand about the outer walls of this room. There is space provided for displaying pictures. The music department is to have a part of this room. Partitioned from the art library by means of book cases of special make, is the local history collection room. This means of dividing sections of the library makes for a flexible arrangement that lends itself to changes that are sure to be required in the future. Similarly partitioned is the periodical reading room, access to which can be gained by means of a door leading from the entrance hall.

To reach the children's room and the newspaper reading room, which are located in the basement, there is no need of climbing the main entrance stairway, this being an especial advantage for the little people. Bronze doors are located on either side of the granite stairway. Another convenience in the arrangement of the building is a passageway which leads straight thru the building on the basement floor, from the front to the art museum at the rear. The newspaper reading room is at the

east of the entrance and is readily accessible from the street. Beyond it is another large room, as yet unassigned for use.

The book stack room is located at the rear of the children's department on the basement floor, and is equipped with Snead stacks. At the rear of the newspaper reading room is another stack room, which has not yet been provided with stacks, there being no need for it at present. The building at present has provided for 350,000 books, but has ample room for 500,000.

Just above the entrance hall, on the second floor, is located a fireproof vault, in which valuable books and papers may be placed for safe keeping. To the west of this is the medical library with the medical study that is to be stacked with books for the use of physicians, nurses and others interested. At the head of the stairs leading from Rice hall is the office of the librarian, with the directors' room at the front of the building and opening off from this office. A room for the librarian's secretary and a large room for stenographers are located between the librarian's office and the medical library.

At the rear of the building on the west end is a very large space which has been fitted as the administration and cataloging department. East of the administration room, at the rear of the building, is an exhibit room, with glass-top exhibit cases, in which rare books, manuscripts and art curios will be placed.

At the front of the building at the east end is a large lecture room, in which about 400 people can be accommodated. Nearby is the map room, which will be used for keeping atlases and maps of all kinds. Golden oak has been used thruout the building for furniture and wood finish, the library bureau doing the work.

TEMPORARY QUARTERS OF THE LOS ANGELES PUBLIC LIBRARY

Remembering that this article was written in 1914, we find it gives consideration to a situation which preceded plans for the beautiful home which this library acquired fifteen years later.

Branch libraries in rented quarters are not uncommon, but the adaptation of space in an office building to the varied needs of a large public library presents some suggestive situations. As this would always be a temporary arrangement it offers experimental opportunities not possible in the permanent building, such as extension of open shelves and departmental plans.

Mr. Joseph L. Wheeler was born in Dorchester, Massachusetts, and educated at Brown University. Since his graduation from the New York State Library School in 1909, he has held executive library positions continuously, as assistant librarian at Washington, D. C., 1909-11, librarian at Jacksonville, Florida, 1911-12, assistant librarian at Los Angeles 1912-15, librarian at Youngstown, Ohio, 1915-26, and at the Enoch Pratt Free Library, Baltimore, 1926 to date. His services to the profession include the vice-presidency of the American Library Association, and the authorship of *The Library and the Community* (American Library Association, 1924).

If a modern public library should play a large, vital and intimate part in the workaday life of the people, few if any library buildings give this idea such complete expression as does Los Angeles in the new, rented quarters which it has occupied since June 1. Some of the problems of fitting into rented space a library which circulates 1,600,000 volumes a year, in a way to give the sort of service which the public likes, may be of interest,

especially in the light of a three months' trial. The present lease is for seven years, with a three year renewal privilege. The rental is \$22,000 a year for 50,000 square feet. This provides shelving for 50,000 more books, and table space for 300 more readers than in the quarters formerly occupied.

The building, whose upper three floors are used by the library, is a new office (or loft) building. "Fifth and Broadway" is in the very heart of the rental and office section, and by the consensus of opinion is the busiest and most centrally located corner in the city. Without climbing any steps, readers can walk from the sidewalk to the express elevators, and out of them to the receiving desk, thence to the open shelves, have their books charged, and return to the sidewalk in the space of two or three minutes, and as an ordinary procedure. This time-saving service is something which the public appreciates very highly, and suggests a feature which deserves to be carried out in more of the permanent library buildings, whose architects are inclined to put entrance steps, stairways, corridors and formality in the way of the patrons. Another feature (unsuccessfully attempted, so far, on account of high rentals) offers a suggestion for permanent buildings, namely the encouraging of certain organizations to secure space on adjoining floors of the building.

The time may come when large public libraries will not only have their busiest departments on the street level and near the entrance, and have quick access to upper floors by elevator, but will contain offices and work rooms, and union lecture halls, for the use of scientific and literary associations, advertising clubs, teachers' clubs, and the like, at nominal rentals. These may have been operating libraries or research bureaus that could be managed by the public library with greater results and less expense to both parties.

Reference to the plans of the eighth and ninth floors shows the provision for open access to books, and the relative location the provision for open access to books, and the relative location and partial combining of reference and circulating features. One of the great faults of the former quarters was the distance between the main card catalog and book stacks, and the reference room. The most zealous scholar, as well as the impatient school girl, was discouraged from the reference use of books by being largely limited to the collection in the reference room itself. The building up and emphasizing of a working collection of books

in the reference room itself had the inevitable result of barring from circulation hundreds of titles which were not reference in character, but only one copy of which could be afforded.

In the same way, the periodical department was distant from both circulation and reference departments. The reference use of books and magazines together, so highly desirable and necessary, was only possible at much inconvenience, especially in the fields of art, applied science and sociology. So irksome was this previous lack of connection between the two features of the work, that in the present plans it has been remedied to a large degree.

The limited amount of space on single floors in the new quarters made necessary a separation of adult books. The juvenile books, and the newspapers and reading-room copies of popular magazines were placed on the seventh floor, together with the offices, staff rooms and work departments. This left all of the circulating and reference books for adult readers to be divided between the eighth and ninth floors. The theory in this planning was that for the best and fullest results to readers the basis of division should be the most convenient use of the books, rather than the distinction between reference and circulating books and magazines; that it is immaterial whether books are studied or read in the library building or at home; that it is important that the reader secure all the literature on his subject, in whatever form the literature may be, without loss of energy or time.

The size and shape of the available space allowed the carrying out of the plan with some subjects, tho not all. Accordingly the literature on several broad subjects was placed on the ninth floor. The circulating and reference collections and the bound and unbound magazines on pure and applied science are combined in the newly created industrial department. The material on art and music is in the same way collected in the new art department. The former document department has been enlarged by adding to it all the literature in the "300's", and is now called the sociology department. There is no barrier between it and the industrial department, to which it stands next and is closely related. Inquirers for literature on mining and agriculture, for instance, can receive the benefit of all the books and magazines in the industrial department, and at the same point will be handled the bulletins and reports which the sociology department

may have. A space in the sociology department has been set aside for the literature and readers on education. As an adjunct to the art department there is a sound-proof room, for the use of a piano. The same room is also available, at certain hours, as a study club room for the group study of the books from any part of the library.

MULTNOMAH COUNTY PUBLIC LIBRARY, PORTLAND, OREGON

A book stack under a reading room is to be found in the New York Public Library and in other smaller libraries, as that of Somerville, Massachusetts, but the centralization of this combination, so that the stack is removed from all outside light, is well demonstrated in this Oregon library.

A sketch of Mary Francis Isom, then librarian of this Portland library, is found in Volume IV of this series, *The Library and Its Organization*. Her article, which follows, appeared in the *Library Journal*, 1914.

In preparing the plans for the new Multnomah County Public Library building there were two points constantly in view, the one to secure the greatest possible amount of space, the other to provide for the utmost economy of administration. That these two objects were accomplished and yet subordinated to the beauty of the building is an achievement of which the architects, Doyle and Patterson, of Portland, may be justly proud.

The building is of the style of the Georgian period, three stories in height, with basement and also a mezzanine floor over a portion of the area. The basement and first story, and also the trimming, are of Bedford Indiana limestone, the remainder of the building is of brick, rich red in color and with slightly roughened surface, which gives delightful texture. Broad granite steps lead to the main entrance and the buttresses on each side are adorned and lighted by bronze candelabra. In the frieze of the cornice over the main entrance is the following inscription, "Public Library Built by Multnomah County. A.D. MCMXII." The frieze upon the remaining three sides of the building bears the words Literature, Philosophy, History, Poetry, Religion, Philology, Economics, Fine Arts, Science, Architecture, Sculpture, Painting, Music, Engineering, Education, Travel, Biography, Mathematics, Astronomy, Chemistry. In each of the panels under the second story windows on three sides of the

building appear fifteen names of notable characters in the following groupings: historians, philosophers, poets, novelists, painters, dramatists, bookbinders, educators, religious leaders, military heroes, naval commanders, explorers, statesmen, painters, etchers, sculptors, architects, musicians, scientists and inventors.

In the backs of the seats of the balustrade surrounding the building are carved the names of the best known and most loved novelists. There are seventy-five pedestals in this balustrade; on the panels of the larger ones are carved the seal of the United States, the early Oregon territorial seal, the state of Oregon seal, the county seal, and the seal of the Library Association of Portland. The smaller pedestals are ornamented with reproductions of the early printers' marks and water marks. On the tympanum over the central doorway is carved an allegorical subject—the Alpha and Omega in an open book. On the tympanums of the other doorways the seals are repeated.

A bronze bubbling fountain is set in a stone niche in the north balustrade, which bears the legend, "Tongues in trees, books in the running brooks, sermons in stones, and good in everything." Above the fountain between the windows is carved the "invitation," "Come, go with us; we'll guide thee to our house and shew thee the rich treasures we have got, which, with ourselves, are all at thy dispose."

Passing thru the main doorway, the visitor finds himself in a large vestibule decorated in quiet tones. The directory of the library is here, also the directory of lectures and meetings, changed daily. To the left is the free check room and a small lecture room, which is equipped with a stereopticon and also with a gas plate. This room is especially adapted to the use of clubs. Beyond the vestibule is a square lobby with stairs, elevator, telephones, etc. At one side of this hall is the entrance to the newspaper and periodical department, and on the other may be found the children's department, branch department, story hour room, woman's rest room, dark room for photographs, and the indoor entrance to Library Hall. This auditorium, which has an outside entrance, also is equipped with stage, moving picture machine and fixed seats which will accommodate 550 people.

The second floor lobby, which is lighted from an open well, has been utilized for the public catalog and information desk. Back of the desk is placed in a niche the Lemnian Athena, the genius of the library. Opening from this hall on one side is the

reference department, at the far end of which are the map and art rooms, on the other the circulation department, and at the end of this room is the school department. On the third side are the technical room and the administration offices, which include the directors' room and private offices for the librarian and assistant librarian.

The unique feature of the building is the arrangement of the stack, which is in the center of the building, artificially ventilated and artificially lighted. The obvious advantage of this plan is that every department of the library, with the exception of the children's and the branch, has immediate access to the shelves; the disadvantages after three months' experience are yet to be discovered.

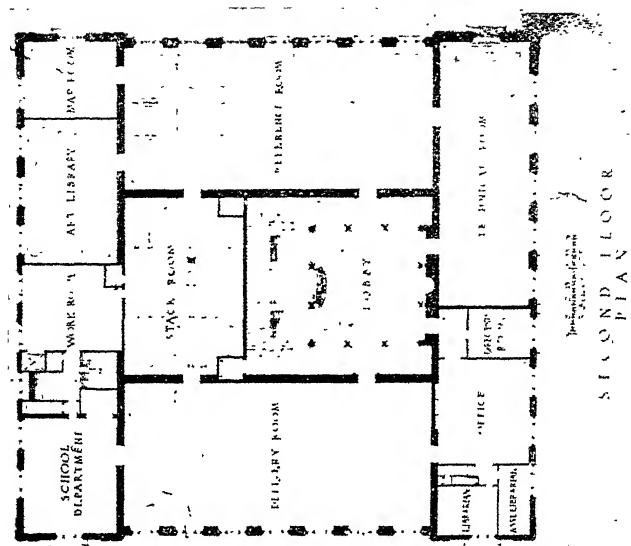
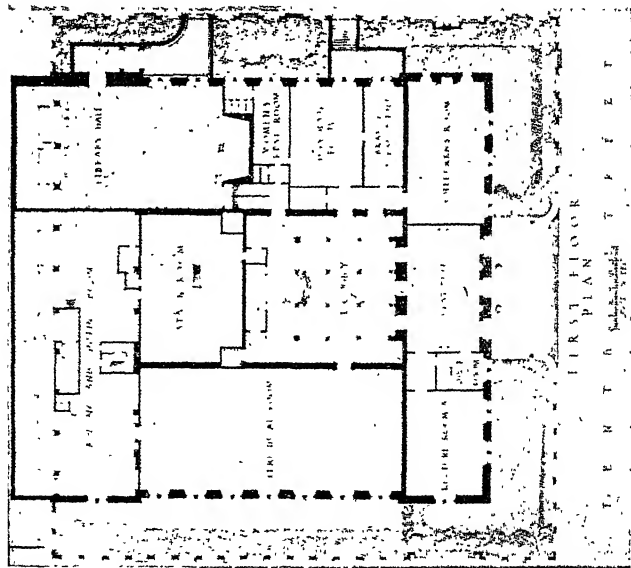
The staff quarters, janitor's rooms and work-rooms are segregated in the rear of the building, which eliminates the necessity of corridors, as a glance at the plans will show.

On the first floor are the packing and shipping rooms and a space for a bindery; on the second floor the school department packing room; on the mezzanine the catalog and order departments, and on the third floor the janitor's apartments and pages' room and the staff locker room, rest room, dining room, kitchen, bath and toilets.

The basement provides for the heating and ventilating plant, storerooms and a large public comfort station for men, which has a separate outside entrance and is maintained by the city.

The main portion of the third floor is not yet used for library purposes. There are five small study rooms, two good sized lecture rooms, and two very large rooms or galleries available for exhibitions.

The building is of reinforced concrete construction, fire-proof thruout. The floors of all the important public rooms are covered with cork tiling; the floors of all other rooms with cork carpet. The wood finish thruout, including all furniture, is of quartered white oak "fumed," and finished with wax. Particular attention was given to the lighting problem, and success has been attained by using indirect lighting fixtures in all the reading rooms. In the lobbies and lecture rooms semi-indirect lighting fixtures have been used with modeled alabaster glasseate in the fixtures. The building has a combination heating system, both the direct and indirect systems being used. The cost of the building, including the Snead stacks and all furnishings, was approximately \$465,000, or 18 cents a cubic foot.



CLEVELAND (OHIO) PUBLIC LIBRARY

SOME FEATURES OF THE CLEVELAND PUBLIC LIBRARY

The departmental idea advocated by Mr. Poole was applied extensively in the Newberry Library, Chicago, a reference library.

The outstanding example of such arrangement in a public library building is that at Cleveland where it is combined with a unified stack arrangement, the departments being practically sections of the stack. The description quoted below was given at the American Library Association Library Buildings Round Table, Seattle, 1925, by Linda A. Eastman, the present librarian, a sketch of whom is in Volume I of this series, *The Relationship Between the Library and the Public Schools*.

Any description of the new main building of the Cleveland Public Library should be prefaced by the statement that it forms one unit of a group of public buildings which is in slow process of construction, as this is a dominating fact explaining the whys and wherefores of many features of the building. The conforming of this building to the Federal Building, its companion at the south end of the Mall, has determined its ground area, shape, height, general architectural style and the materials of the exterior structure. When the group plan is completed, the old commercial buildings to the north will be replaced by additional public buildings and a parked Mall six hundred feet wide and the library building will then have its proper setting.

The building has a frontage of 219 feet and is 197½ feet deep. There are six floors including the basement or ground floor, each of a height to carry two tiers of stacks, while the main floor has three tiers, making thirteen different tier levels of stack. Above the second floor is an inner court, seventy-eight by one hundred fourteen feet, from the four corners of which

smaller courts extend down to the basement floor level, carrying light and air to all floors. The stacks are built around the court, getting light and ventilation from it, and the reading rooms, with larger exterior windows, adjoin and surround the stacks.

This paper will not repeat the general descriptions of the building which have appeared in the *Library Journal* for June 1, the *Cleveland Plain Dealer* of May 10th, the Guide to the building and the dedication number of the *Open Shelf*, issued by the Library, and, more detailed and fully illustrated than any of the foregoing, the forty-eight page descriptive booklet which the Library has just published.

The number of reading rooms, sixteen, and their divisional arrangement, is one of the first things noted in a survey of the floor plans. The location of the various divisions was decided after a careful study of the inter-relations of the various divisions and their individual requirements.

The main floor contains those divisions having most popular use and meeting the greatest number of quick-service calls. Those divisions having most scholarly use are placed so far as possible in the quieter parts of the building. The further provision of numerous small study rooms and cubicles for serious students, research and literary workers is already proving a source of great satisfaction.

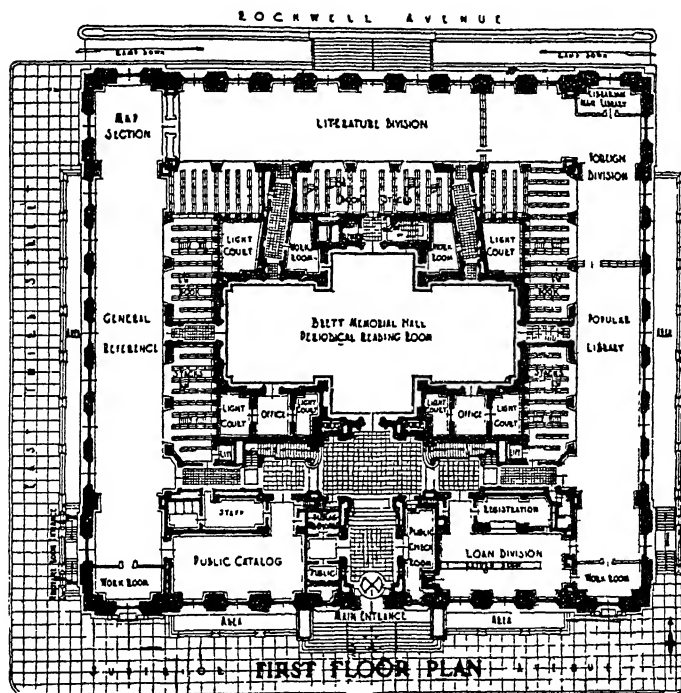
The breaking up of the book stacks, giving each division its own two or three tier stack immediately adjacent, with additional storage stacks either above or below it and accessible to it by electric book lift, is another feature designed to bring into the closest juxtaposition the books on a given subject and the readers who are interested in them. Wall shelving also covers all available space in the reading room. All book stacks and shelving are made of steel.

Unusual details of the book stacks are the extended base which gives to the books on bottom shelves more protection from splashing in cleaning floors; the fitting of the stack floors in a manner which permits of ventilation but prevents the possibility of books falling thru; gate bars at ends of lower tiers of stacks adjoining reading rooms, which will permit of closing any section of the stack from public access, if this is desirable; glazed doors with locks on certain sections of the stacks for choice books which should be protected from dust and from casual handling; and movable working desks for extension

shelves to attach to the shelves and the balcony railings. A bronze mop-board protects the stacks at the floor line. The stack lighting was given special attention, the reflectors being shaped to screen the light from readers' eyes so far as possible.

The spacing of structural columns of the building necessitated stack aisles narrower, for the most part, than those considered desirable for stack construction, but this is not a serious fault in this broken up stack, in which compactness for each division is rather desirable.

To obviate trucking the returned books across the reading room floors, they are sent by electric elevator to the balcony of the Return Room, sorted and trucked up a ramp to the third tier of the main floor stack, from which they are distributed to their proper stacks, either thru the service elevator or the electric book lifts.



Windows are so planned that nearly all rooms have rather exceptional natural light, and Venetian blinds shut out the sun's rays, while admitting 85 per cent of the light and air. To insure adequate artificial lighting, ceiling lights are supplemented by desk and table lights. The latter are worked out to an original design studied to throw the light on the reader's page and to avoid reflections and direct glare. On individual tables and desks they are placed near the front, at the left of the reader. They are made of bronze; the bulbs are locked in, and not removable without a key.

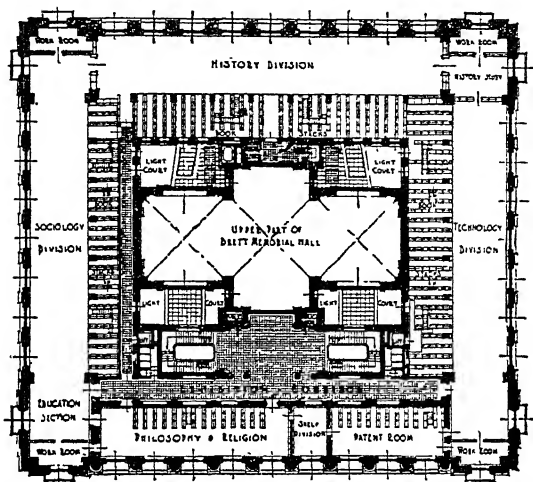
The public rooms, including the general offices, were equipped thruout with new furniture, specially designed. To fit the space and the requirements of the different rooms and the comfort of various readers, there is quite a variety in the size, shape and design of the reading tables, the lengths of which vary from fifteen feet to thirty inches, the latter being the individual tables which many readers prefer, and which have been quite generously provided in many of the rooms. Seats, too, have been planned with a view to comfort: the Windsor, Bank of England and straight-back chairs have been modified to combine graceful lines with strength and durability, while other seats and benches of varying designs here and there invite the visitor to sit for a few moments and enjoy the nearest books or magazines.

Tables carefully designed for the indexes to periodicals and public documents are located at the end of the general reference division adjoining the public catalog room, thus making it easy to inquire into the general resources of the Library on any subject. The business services, dictionaries and directories have also been provided for, with tables planned to make their consultation easy.

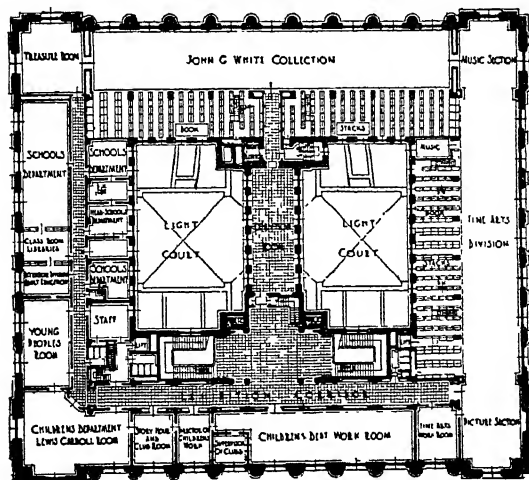
Each division has its own self list and a duplication of its own part of the dictionary catalog; altho the latter is not yet completed in some divisions, these have been given telautograph connection with the complete catalog in the public catalog room.

Nearly ten thousand new catalog trays were installed, and most of the old cabinets were also brought to the building. The new cabinets are of oak. Some of the other card files are metal, as are the vertical files for pamphlets, clippings and pictures. In the registration files the trays pull both ways, so that the filing can be done from the rear, out of sight of the

public desk. A Rand unity tube index, opening like a book on a lectern, is most convenient for those consulting the list of our current periodicals.



SECOND FLOOR



THIRD FLOOR

The utilization of the corridors for display purposes is a very important feature. Exhibition cases have been built into the walls of the main corridor on the ground floor and on the second and third floors, and in addition glass display cases on floor standards were made for the broad corridor spaces between the stair-heads and for the attractive little exhibition corridor which gives access to the John G. White Collection. These standards, together with the bulletin board frames-and-standards for the corridors, are of beautifully wrought iron, and the lighting, ventilation and fittings of the cases have been carefully planned in minute detail. Display racks of several types and sizes have been worked out to feature books in the divisions, and there are many bulletin boards. The two display windows in the front of the exterior at the street level have been successfully designed by the architects, a difficult feat in a building of monumental type.

Guards at the entrances, an information desk in the main corridor occupied by a library hostess, bulletin board directories and floor diagrams, together with the printed Guide to the building, all aid in directing visitors unacquainted with it. We hope to make a regular docent service a valuable feature in informing our citizens regarding the resources, the varied activities and the needs of the Library.

There are 57 Bell telephone stations and 16 extensions, with 16 outside trunk lines, 93 P. A. X. automatic house telephones, seven telautograph stations, and a system of buzzers to call pages and assistants. The clocks are electrically synchronized. A conduit base thruout the building carries wire cables to simplify future installations of lights, telephones, etc.

The placing of the children's room (named the Lewis Carroll Room), on the third floor causes no inconvenience, as this room is more a laboratory for work with parents and teachers than for children themselves, who because of traffic dangers, are not encouraged to come down town to the Main Library unaccompanied, and who are served for the most part thru the branch and school libraries. It is, however, a happy hunting ground for children living near, and for those whom father or mother leave here while doing their own shopping or business errands.

In the new Stevenson Room for Young People we hope to work out some of the vexed problems of the reading of

intermediates. The name was chosen for this room as the result of suggestions made by the pupils in English classes in the high schools, who were consulted for the purpose of learning what name would make an appeal to their interest. We hope this room will be much used by the young people themselves, as well as by their elders who are concerned with their reading.

Offices for the Reader's Advisor off Brett Hall, and for the Extension Division of Adult Education in the School Department, are planned to further our best efforts in the movement for education of adults in which we are all so interested.

The name of the future Treasure Room was given with the hope and belief that it will attract treasures unto itself. The placing of the donors' tablets on the stair-walls was a happy inspiration of the architect, also valuable for its suggestion of further gifts. Two small rooms have sound-proofed ceilings, one of the staff rest rooms and the room for the piano off the music section of the fine arts division.

The need for adequate working space for the staff can hardly be over-emphasized, as most librarians know. Insistence has been placed on it in planning this building, and the non-public departments have been laid out with care, with a view to the most economical routing of the various processes of their work while the small work rooms provided for the public divisions meet a long-felt need. Altho the old furniture used in many of the work rooms suffers by comparison with the fine new equipment of all public rooms, they are very comfortably adapted to their various purposes.

The top floor of the building has much space devoted to staff activities and staff welfare. The assembly room and class room will be used for public meetings as well as by the staff, but they were planned and equipped with many possibilities in mind, and it is hoped that much "library spirit" will be developed within their walls as our younger workers meet with the older ones in apprentice classes, staff meetings, and staff parties; wonderful facilities for social functions are afforded on this floor, where the two rooms above mentioned open up together and on into the attractive women's staff lounge, as well as out on the promenade which extends all around the building. Here, also, are the men's lounge, comfortably equipped; the staff cafeteria, soon to open, the committee lunch room, where the library board or staff committees can "lunch and labor"

when time presses, and where we hope many a visiting library friend may break bread with us in months to come; and adjoining the latter the grill, equipped with range, refrigerator, sink, cupboards and dishes for those who wish to bring their lunches.

Judging from comments of many different types of visitors, the attempt to make the building inviting and attractive has been successful. Cleveland seems to be thoroly enjoying the possession of a real main library building at last, and it has immediately taken its place as one of the principle "points of interest" in the city.

Any librarian who is bemoaning delays in the starting of a library building may find solace in the following facts. The plans for the Cleveland building were all made and the building about to be begun in 1917, when the war and the resulting high building costs made it impossible to proceed. Had the building been built at that time, it would now be sadly inadequate to present needs; nor could it have been remodeled to its present plan, for the building, as then proposed, was less elastic in many ways than it now is. At that time it was thot that the ground, first, second and third floors would furnish ample space for the Library for at least twenty years, and the fourth and fifth floors were either to be left unbuilt or unfinished, or leased to some outside organization for a term of years. Either plan would have found the Library in a rather hopeless situation today, for in the first case, it would have been much more difficult to get a bond issue to complete a building occupied so short a time, than for one not yet started and obviously needed, while in the second event, it might be quite impossible to oust a tenant who had a legal right to remain, and if that could be done, much money would still need to be forthcoming to adapt and equip the space for library uses.

It has now been proved most fortunate that the building was delayed, making possible an entire working over of the plans. Departments and divisions were reallocated and given more space, and new ones provided for; floors were strengthened to carry full weight of stacks wherever it may be necessary to put them in future; book-stack space was increased by eliminating a number of long corridors which might in themselves have offered a serious problem of supervision; ceilings were raised to permit a two-tier stack on the fifth floor; six stack stairways were cut thru between floors and three service elevators added;

the walls of one room were strengthened to carry a future balcony; and, among other changes, our beautiful and stately Brett Memorial Hall was evolved out of what would have been an unsatisfactory combination of delivery, public catalog and information room and a general concourse.

In the eight years since the building was first planned, both the book collections and the work of the library have almost doubled. As it is, the present very liberal accommodations for readers can be further increased, and the maximum book capacity is about four times the present need, but in years to come the officials of the Public Library and of the Federal Building may be exerting their combined efforts to induce the city fathers to allow extensions of both buildings toward the Lake on the north, the only side on which enlargement could ever be possible.

There is every indication that the numerous rooms for use for individual or group study, and for classes, clubs, and other meetings, will be scheduled to capacity in the very near future.

Most aptly to library buildings, as indeed to library administration in general, does that wise admonition of the architect, Daniel H. Burnham, apply: "Make no little plans. They have no magic to stir man's blood and probably themselves will never be realized. Make big plans, aim high, . . . remembering that a noble, logical diagram once recorded will never die."

RECENT TENDENCIES IN THE PLANNING AND ARCHITECTURE OF CENTRAL LIBRARY BUILDINGS

Tho a summary rather than a description of any new developments this excellent article from *The Library Journal* read before the Library Building Round Table, Los Angeles, 1930. shows such grasp of the whole field and so points out the relation of the past to the present that it seemed fitting to close the section with it.

William Frederick Yust, librarian of the Rochester Public Library from 1912 to 1931, was born in Canton, Missouri, in 1869, educated at Central Wesleyan University and the University of Chicago. After taking his B.L.S. at the New York State Library School, he served as assistant state inspector of libraries of New York State, then as librarian of the Louisville, Kentucky, Public Library before going to Rochester. He lectured on library buildings at the New York State Library School for a number of years, and has made numerous contributions to library literature. In 1931 he became librarian of Rollins College, Florida.

According to A. D. F. Hamlin, professor of the history of architecture in Columbia University, "The public library is one of the most highly developed types of buildings to be found in American architectural practice. . . By careful study of the problems it presents, primarily by librarians and secondarily by architects, its requirements, and the best means and devices for meeting them have been more completely worked out and standardized than those of any other type of edifice except the modern office building. Taken as a whole, the libraries of the United States, large and small, represent American architecture well nigh at its best." That was said fifteen years ago. It is high praise, perhaps too high. It may appear later whether that judgment should be affirmed as it stands or modified.

The word "Recent" is so indefinite and the word "Tendency" is so difficult to define that a simpler title for this paper would be, "Some characteristics of central library buildings of the last ten years." Eleven of the larger central buildings erected during these years are in the order of completion those in Wilmington, 1923; Albany, 1924; Cleveland, 1925; Los Angeles, 1926; Houston, 1926; Pasadena, 1927; Birmingham, 1927; Philadelphia, 1927; Amherst, 1928; Queens Borough, 1929; Richmond, 1930. Buildings are under construction in Baltimore and Brooklyn; they are contemplated in Cincinnati, Milwaukee, and Rochester.

BIBLIOGRAPHY

One of the most telling evidences of the trend of that in planning is what the makers and the users of plans have to say about them. A "Reference List on Library Buildings and Equipment," compiled by the writer and issued in April, 1930, by the American Library Association, is therefore appended to this article. Of its twenty-four entries, all but five bear the imprint of the last ten years, and over half of them were published during the last five years. Reference should also be made to a paper presented to this Association in 1916 at the Denver conference by Mr. Chalmers Hadley, entitled "Some Recent Features in Library Architecture." Several of the features pointed out by him have developed into real tendencies and are therefore emphasized anew.

SUMMARY

They may be summarized under economy of construction, economy of operation, and, above all, enlargement and enrichment of service. Economy has always been a watchword. A new meaning lies in its application to the time and effort of the reader as well as to the cost of the service. Efficiency was a favorite word until it became trite. Rotarians and their like are now overworking the little word "service" so that it is in similar danger. And yet no one word has ever given better expression to the library ideal. The difference between yesterday and today lies mainly in the expanding conception of its meaning and a broadening attitude toward methods for its realization.

The librarian of today, like the first librarian, still has to deal with books and people. But neither the books nor the

people are the same. Both have changed vastly in character and number. Where formerly there were a hundred books and a hundred readers, there are now a thousand books and a thousand readers. But the librarian's job is still to bring them together easily and effectively, not just a few of each but many books and many readers. The change, however, has not been merely quantitative. With the growth of the democratic spirit has come the conviction that "books are not for the few but for the many," and that each one of "the many" should receive larger consideration than was formerly shown to the few. And so the librarian is constantly endeavoring to increase the users and the use of books by making the books more accessible. Increased accessibility of books is the most significant characteristic of modern library planning.

CONTRIBUTING FACTORS

Among the influences which have been operative in producing change may be mentioned:

1. *The high cost of sites, of building materials and of labor*, which increased so enormously during the World war that the building of libraries was decidedly checked. Due regard for these items still delays "enterprises of great pith and moment," and causes more thoro study of the economic factors involved.

2. *The rapid accumulation of large book collections*. As libraries grow larger and available space smaller, the problem of shelf capacity becomes more acute.

3. *The increasing popularity of libraries* due to increased population and a more general use of books by the rising generation.

4. *The demands of the age*. Modern scientific developments and mechanical inventions have eliminated inconveniences that once were accepted as necessary evils. The automobile, the electric elevator, the airplane have revolutionized much of our thinking and developed impatience with the slow methods of the past.

5. *Traffic conditions*, which affect location, approach and general layout of grounds.

6. *Advances in electric lighting*. Electric light is cheaper, under better control and more adaptable to building requirements and human needs than ever before.

7. *Lessons from office and other commercial buildings*, in which every square inch of rental area counts. Investments in these have been large, and a corresponding amount of attention has been given to their planning and operation.

8. *Lessons from branch libraries*. Branch libraries are the chief agencies for bringing books close to the people. When Boston started the first branch library there was so much fear about its effect on the central library that the poor little branch was placed on an island. The idea proved so harmless and wholesome that it was allowed to come on the mainland. Ever since then we have been learning from branches our most valuable lessons of how to make books accessible. Location in a community center, entrance on the sidewalk level, visibility from the street, open shelves, self help, friendly intercourse, these are all plants that have been largely fostered and developed in the popular atmosphere of the branches. Even in temporary quarters they have proved useful laboratories for experimenting and testing new theories.

9. *Change of policy by the Carnegie Corporation with regard to gifts*. Andrew Carnegie and, later, the Carnegie Corporation was for many years the chief source of funds for new buildings. In the course of time certain suggestions on the part of the corporation developed into definite instructions, which were finally printed as "Notes on the Erection of Library Buildings." Altho they were suggestive rather than mandatory, probably no four-page pamphlet on the subject has had a wider standardizing influence. In 1924 Mr. Hadley incorporated it entirely in his brief book on *Library Buildings*. These "Notes" aimed to secure "an effective and economical layout of the interior." They undoubtedly had a wholesome effect and prevented much waste of generous funds. They prescribed no specific architecture, and yet the deference with which they were naturally received ultimately produced a more or less fixed type of building that is readily recognized. Now that these gifts for buildings have been discontinued, communities and architects are exercising greater freedom in the expression of their individuality. This freedom may not be producing better plans, but at least there is greater variety.

CIVIC CENTERS

An increasing number of large cities are developing civic centers. Several recent library buildings are located in such

centers, where it was necessary for them to conform to the general architectural scheme of the group. The results are not all successful. In such an arrangement the library may profit by and contribute to the architectural effect which the community desires to accomplish. Unless there is sufficient detachment, however, the plan is almost certain to imply restrictions that will interfere with the best planning as well as future expansion. The dominant idea in a civic center is architectural effect. This is not in keeping with the principle of locating the library primarily for service. Unless the civic center happens to be in the best place for such service (which is not generally the case), the placing of the library in the civic center is a mistake.

The Classic Greek architecture long dominant in libraries large and small is still favored for monumental buildings, altho modifications are frequent. A striking departure is the Los Angeles building with its spreading masses of concrete rising high in modern terraced formation.

ARCHITECTURAL STYLE IN LIBRARIES

It has required real courage as well as originality to break away from the traditional type of library architecture. Modifications came, however, and are still coming in response to the ever-present desire for variety and especially as a result of radical changes in our conception of proper library service and of the building features essential to its achievement. This movement is producing structures better adapted to their purpose and to local and climatic conditions.

REDUCTION OF WASTE SPACE

Conspicuous among these changes is a reduction in the large amount of space formerly allotted to permanent walls, halls, stairways, corridors and rotundas. It seems almost incredible, and yet we are told that in some monumental buildings 50 per cent of the ground area is used for these purposes, when it could be readily reduced to 20 per cent or less. Such reduction not only lowers the cost of construction but also the cost of operation and makes the reader's approach to the books shorter and more satisfactory.

Economy of space thru compact storage of books finds a most recent development in the rolling stack of the Toronto Public Library. This is a marked advance on the storage stack of England, and is the first of its kind in America.

Another wasteful arrangement that has been abandoned is the radial stack and its architectural accompaniment, the semi-circular wall at the rear, more costly to build than a straight wall and less easy to change in future expansion. The only method of enlargement is to tear it down and build anew. This feature was copied for years from the library exhibit at the Columbian Exposition.

GREATER FREEDOM IN PLACING BOOK STACKS

An immense gain for library planning has come thru greater freedom in placing book stacks regardless of daylight. In former days, owing to the inadequacy of artificial light, one of the chief problems was to place the stack room where it could receive the largest amount of natural light. Many large buildings have the major part of one side or the rear marked with long narrow windows close together, extending from the ground to the roof, luring in the light between the long rows of book shelves. At best they worked only during the daytime. Furthermore, this arrangement forever shut off the light and air on that side of the building from readers, who needed it more than did the books. The books suffered from the light and the readers from the lack of it.

The great developments in electric lighting have completely changed this problem and made it possible to place the stacks wherever they are most accessible. The most thoroughgoing application of this principle is placing the stack in the center of the building, with reading, study and work rooms on all four sides. One of the earliest examples was in the Public Library of Portland, Ore.; another in Minneapolis; more recently in Pasadena, and the latest in Richmond, Va. More frequently this freedom is seen in placing the stack in the basement, which was early done in Springfield, later in Wilmington, and now in Baltimore. The Philadelphia stack begins twenty-five feet below ground.

LARGER OPEN SHELF SPACE

The open shelf idea is still growing. What is designated as the open shelf room constitutes one of the largest and most conspicuous units in every modern building. This is in addition to the fact that there are many books in reference and other

departmental rooms to which readers have free access. Baltimore will have eight open shelf rooms instead of one, covering the entire first floor and containing 150,000 volumes. In spite of the tremendous loss of books by theft, the plan is still regarded as economical on account of its saving in salaries of assistants and in time of borrowers. Of course the greatest gain is to readers, for whom this method changes the getting of a book from an embarrassing and at times exasperating experience to a simple, direct and fascinating adventure. The open shelf room is the best illustration of the spirit of the modern library, which has satisfying service as its goal.

STORAGE AT A DISTANCE

In 1902 President Eliot of Harvard appeared before this Association and outlined a method for relieving book congestion in central libraries by providing cheap storage for less used books at a distance from the main building, where the "overhead" would be less expensive. He had in mind a plan in which large libraries in a given region would cooperate. The idea has lain dormant for almost thirty years. Recently it was put into successful practice by the Providence Public Library, as described by its librarian, Mr. Clarence E. Sherman, in the July, 1929, number of *The Library Journal*. Since the plan was first suggested by President Eliot, automobile transportation has improved so much that book deliveries can now be made at a central library from a distant point within the city almost as quickly as they were formerly within the building. It is only a matter of time when other libraries without room for expansion will have to adopt this plan or some other method to accomplish the same result.

OPEN AIR READING ROOMS

The patio retains its position as an architectural feature in buildings of the South and southern California. In regions farther north the idea persists that an open air reading room on the roof or in a beautiful garden ought to be popular, but it is not. Either that type of reading is rare or people prefer to do it in the privacy of their own back yard. As those private yards grow smaller in size and number, there may come greater interest in public open air reading rooms.

PROVISION FOR STAFF

Good planning continues to recognize the importance of the human factor. In the commercial world more and more work is being done by machines, but the machines themselves require an increasingly higher type of operator. Exhaustive investigations by industrial plants into the effect of physical surroundings have resulted in the most modern provisions for the health, comfort and general well-being of employes with corresponding gain in quality and quantity of finished product. The regular workrooms of libraries are no exception in this respect. Likewise, commodious and well-equipped staff rooms for rest and recreation in a convenient and pleasant part of the building have become established features. It has been said: "The staff accommodations in the Philadelphia building should serve as a model for other libraries for a long time."

INSTITUTIONALISM

No trend of recent years is more pronounced than the attitude against the formalism and institutionalism of library buildings, a phrase which is broad enough to cover a multitude of sins of omission and of commission. Almost a quarter of a century ago, "Mr. Dooley" contributed this comic valentine:

"A Carnaygie libry is a large brown-stone, impenethrible buildin' with the name iv th' maker blown on th' dure. Libry fr'm two Greek wurruds, libus, a book, an' ary, sildom—sildom a book. A Carnaygie libry is archytechoor, not lithrachoor."

Only two years ago a Springfield newspaper spoke of some libraries which have a "look of a prison where books are caged up and held incommunicado for life."

Some of the most loving tributes have come from librarians themselves. Mr. Charles R. Greene says we talk much about progress but "go on building structures not unlike armories, depots or post offices." Even Dr. Arthur E. Bostwick admits that sometimes the mere sight of the outside effectually keeps people out. "The old library forbade, or at least discouraged, use by the general public. It was a place for the scholar and for him alone."

Mr. Joseph L. Wheeler is more outspoken in his observations about "the old-fashioned idea that a library is a mausoleum or

a fortress" with windows remote and aloft and a discouragingly broad stretch of stairs which the reader must traverse before reaching the building, or a long, laborious flight inside which he has to climb before he gets up to the service counters. Even some fairly recent monumental buildings do not make "the faintest attempt to induce the man of the street to come in. This doubtless is a lingering final relic from the libraries of a half century ago, which, in turn, copied the seclusion, remoteness and monastic spirit of the Middle Ages."

Another severe indictment comes from Mr. Samuel H. Ranck, who says: "The architecture of the average library building suggests a tomb—a place for dead ones. . . The best advertising is that which comes from a well-served patron. But our libraries have thrown away one of the best means of publicity by locating their buildings where people must go out of their way to find them, and by so arranging them that the passerby sees nothing but stone, brick and glass—things that suggest nothing of the joy and usefulness of books. . . Every block that separates the library from the principal lines of movement of the people, every foot that people must walk from the sidewalk to the entrance of the building and then to the books, every step that must be climbed above the level of the sidewalk to reach the first floor, are all so many hurdles, barriers, which the people are obliged to overcome before they can get to the books. . . The bad location and arrangement of library buildings in the United States are keeping hundreds of thousands of potential users and supporters away from them and out of them every day of the year." (*American Builder*, December, 1923.)

This dark picture may well be placed alongside the one drawn by Professor Hamlin. However, it emphasizes characteristics which, fortunately, are slowly vanishing. The very men who have been most severe in their strictures are contributing most to the trend in the direction of greater consideration for people and the means for more adequate service thru the instrumentality of books. The major emphasis is shifting from buildings and even books to people to such an extent that we are now talking about humanizing the library building, a phrase also of sufficient breadth and potency to take away all the sins of "institutionalism." Three years ago, at Toronto, Dr. Bostwick presented a paper on this subject which voiced a widespread sentiment.

That sentiment proclaims a larger cordiality and hospitality thru visibility of the interior from the exterior, so that every man as he passes by may "see with his own eyes"; "see crowds enjoying books and see attractive things in print thru properly arranged show windows"; location of the building close to the sidewalk; the main entrance, "a beauty spot," on the sidewalk level without climbing long flights of steps on the outside or the inside; using the first floor as the main service floor, and so arranged that it forms an inviting book vista beginning near the entrance; admitting people directly to the largest possible number of books, and transporting them quickly to less used floors on higher or lower levels by means of public elevators. In the language of the statement outlining the principles to be embodied in the new Baltimore building, "Its very aspect must express friendliness, human understanding, closeness to the people, a large and impartial hospitality to all men."

DEPARTMENTALIZATION

Departments of various kinds have always been fundamental in library organization. There have been administrative departments; departments for groups of readers, as adults and children; departments for types of service, as reference and circulation; departments for special forms of content, as periodicals and newspapers; even departments for particular subjects, as art and technology. Subject departments have been created from time to time in growing libraries as they were warranted by the size of the collection or the public need or the size of the budget. Such departments in charge of specialists have existed for generations. What is recent about them is their increasing number and the breaking up of the otherwise compact stack arrangement and grouping the stacks according to departments. This arrangement was first introduced on a large scale in Cleveland and followed with some modifications in Los Angeles. Its essential features have been incorporated in the Baltimore plans.

Extensive departmentalization has passed the experimental stage in those libraries. By this method they have been able to develop a type of service which is the nearest approach yet reached to the librarian's ideal of personal service. The most important problem involved is that of expense. It is another

case of "cost more, work more." However, by centralizing the charging and discharging of books, this cost can be reduced and the remainder centered on the more important aspects of library work. How far it will be adopted by other libraries will depend largely on the extent to which they can obtain larger appropriations.

The early meetings of the American Library Association were frequently enlivened by a discussion of antagonistic views on library buildings. The monastic, cathedral type with its lofty rooms surrounded by alcoves, galleries and balconies was championed by that great scholar, Justin Winsor. It was severely criticized by that other towering pioneer, Dr. William Frederick Poole. He advocated a type requiring a whole block of land, having the books stored not in one general repository but in a series of rooms thrown out as wings from the central part of the building, each of these rooms to contain the books on a special subject.

His ideas were finally incorporated, in part at least, in the Newberry Library. While that library has not served as a model for others, yet its ultimate plan marked a tendency in library planning, which has continued to this day in seminar and departmental rooms. Likewise, Justin Winsor's idea is still represented in the modern book tower twenty-two floors high. Thus we have a combination of these apparently antagonistic ideas resulting in ample storage for books as well as easy access and conveniences for their use.

LIBRARY BUILDINGS AND EQUIPMENT

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SMALL LIBRARY BUILDINGS

Gems of economy, service and beauty have developed in the little library class in great numbers. Perhaps there has been the greatest individuality expressed in this field, but a few principles seem to have exerted a directing influence.



KENT MEMORIAL LIBRARY, KENT, CONN.

HOW TO START LIBRARIES IN SMALL TOWNS

Such simple instructions as these which appeared in the first volume of *The Library Journal*, helped to put libraries in the small towns in New England at an early date. Rev. Aubrey M. Pendleton published a series of these articles covering every problem of organization. He was principally responsible for organizing, in East Wilton, New Hampshire, where he was pastor of the Unitarian Church, a public library of 2,000 volumes.

The editor of *The Library Journal*, in which his articles appeared, says "his personal experience has been so successful that his advice should have much weight."

We have now come to a stage in the formation of the library when the question of its habitation can no longer be delayed. Where and what shall it be? Unfortunately, this is a matter in most instances with which choice has little to do. The first home of the library must often be no better than a tent, with the prospect of successive migrations. But where there is an opportunity for choice, there are several things of prime importance that are not to be overlooked.

First, let the room be centrally located, not geographically, but in the most populous part of the town. Plant it among the people, where its presence will be seen and felt. Next, other things being equal, it is better to have it upon the first floor, so that passers-by will see its goodly array of books, and be tempted to inspect them. Care should be taken to have it well lighted, and if possible have a second room, in which visitors can linger over periodicals and other entertaining works. The wise library manager, like the children of this world, will hold out as many seductions as possible. Encourage dalliance by scattering about temptations. If the sight of evil tempts to evil, so the presence of good things quickens the desire to possess them. A cheery room, tastefully arranged and kept,

a generous display of books, and numerous persons coming and going, will determine the popular tide to your quarters. These are elements of a successful library often as important as the character of the books themselves. A library pushed into a dark corner or an unsightly closet, or lodged in the rear part of a store, will never have a strong hold upon a people. If it be possible, have it by itself. Do not locate it in a store because a clerk who is busy with other things most of the time will attend to it now and then. Cheap labor is often the most expensive. Things that will do, make-shifts of one kind or another, we are all compelled to accept; but accept them as the last resort, and not as the ready confession of our good-for-nothingness. Covet the best things, and when attainable, be satisfied with nothing less.

In the arrangement of cases it is important to economize room. For this purpose it is best usually to build alcoves across one end of the apartment, and as the library increases, to put up a second range of cases farther out, leaving a space between wide enough for a walk. To protect the books from injury, and for convenience in sweeping, the base should be raised from four to six inches from the floor. The three uprights which form a case, if placed from three feet to three and a half apart, will give shelves as long as will bear the weight of books without sagging. They should not be much more than eight or nine feet high, so that the upper shelf can be reached by a single step from the floor, and should be finished at the top with a simple moulding.

Shelves of eight inches depth will accommodate the great majority of books; and if made movable, the shelves can readily be adjusted to their different heights. For this purpose there is nothing cheaper, and on the whole better, than a stout screw-eye such as is used to hang pictures. On the inside of the uprights pencil a line from top to bottom, two inches from the outer and inner edges. On these lines bore holes at regular intervals of either one or two inches, large enough to admit the screw easily. The shelves when in position will rest firmly on the supports furnished by the screw-eyes at their four corners. If that desirable, a slight cut may be made in the under side of the shelf to fit the head of the screw-eye. There is also a small casting made for this purpose, but it is no better practically, and is more expensive. With either, the shelves

may be arranged at any distance apart, and hence the utmost economy of room be secured. This arrangement is also very valuable in case of fire. Whole shelves may be removed at once without packing or confusion.

Two cases, when placed back to back in the forming of alcoves, require, to keep the books from encroaching upon each other, to be separated by a partition of some sort. A thin wooden partition is sufficient, tho in many libraries wire cloth or netting is used. This, tho more expensive, has the advantage of not obstructing light as a close partition does, and also of allowing a freer circulation of air. A lattice on the back, well perforated, would answer much the same purpose.

A special device for exhibiting the newest books, or a convenient receptacle for the works of reference most used, may be found in a small article called Danner's Revolving Book-Case. It is a square of twenty-two inches, turning on a spindle, stands five feet two inches high, and occupies no more room on the floor than an ordinary chair. Being on castors, it can be moved to any part of the room. The largest size has four spaces or shelves, and will hold from one hundred to one hundred and twenty-five volumes. Neatly made of ash trimmed with black walnut, it is a capital article to have in any room where books are wanted. It is furnished by the patentee, John Danner, Canton, O., at a cost of \$20, \$18, or \$16, according as it has four, three, or two shelves.

The numbering of the alcoves and shelves completes this part of the library. Various devices are employed for this purpose. The nicest, and of course the most expensive, is a silver-plated number; the next best, a common metal number; third, a thin brass plate perforated with a stencil, through the openings of which a black underground is displayed; fourth, numbers printed on paper, which may be had at any printing-office, or which can be obtained in quantities ready-gummed from P. F. Van Everen, 191 Fulton Street, New York City.

SMALL LIBRARY BUILDINGS

The buildings designed by H. H. Richardson illustrate the style against which Mr. Poole is here directing his efforts at reform in library architecture. A description of the first of these, the Winn Memorial library at Woburn, will be found on p. 17.

A noticeable realization is that the Richardson exterior could have been combined with such an interior as Mr. Poole advocates. A sketch of Mr. Poole is in Volume III of this series, *The Library and Society*.

The subject of Library Construction has been considered at every meeting of our Association; and perhaps no topic has been discussed on which there has been a more general concurrence of opinion than that in favor of improved methods of construction. The discussion, however, which has been directed almost wholly to the requirements of large libraries, admits of a wider and more practical application. I purpose in this paper to treat the subject of "Small Library Buildings," of which a hundred are needed, where one is needed of the larger class.¹

One of the most puzzling questions which now arise in a new board of library directors, and in some old boards, is: "What sort of a building shall we construct?" The treatment of the subject in our Association has made the subject the more puzzling; for it has unsettled old ideas, and has given little that is specific and definite to supply their place. It was formerly the practice of directors to look around for a library building which had galleries and alcoves, and to reproduce its general plan, and

¹ My earlier papers on the general subject are: (1) "On Library Construction," read at Washington in Feb., 1881, and printed, with drawings, by the U.S. Bureau of Education (Circulars of Information, No. 1, 1881); also, with drawings, in the *American Architect* (v. 10, p. 131), and, without drawings, in the *Library Journal* (v. 6, p. 69). (2) "Report on the Progress of Library Architecture," in the *Library Journal* (v. 7, p. 130); and in a separate pamphlet, Boston, 1882, 16p. (3) "Remarks on Library Construction; to which is appended an examination of Mr. J. L. Smithmeyer's pamphlet entitled, 'Suggestions on Library Architecture, American and Foreign.'" Chicago, 1884, 34p. The "Remarks" included in this pamphlet are in the *Library Journal* (v. 8, p. 270).

as much of its details as they could pay for. They usually copied its worst features. It was enough if the building was architecturally picturesque. Whether it was adapted to the uses of a library was a matter of no consequence. The selection of a plan by this method was comparatively easy. The discussions which have occurred in our Association have checked this mode of selection. The idea has gone abroad that the librarians of the country have condemned the old and conventional style as very faulty; and have asserted that library buildings should be constructed with some reference to common-sense, utility, economy, the safety of the books, the convenience of the public in using them, and of the custodians of the library in doing their work. Every other class of structures—dwelling-houses, stores, workshops, factories—are planned and built with reference to the purpose for which they are to be used; and in these latter days the principle has begun to be applied to library buildings.

Very little, however, as I have remarked, has been done for the development of these common-sense ideas in specific plans. This is a work to which many librarians may contribute the results of their study and experience. The aid of skillful architects must also be sought, and it will be cheerfully given; but the leading ideas which are to control the reform must come from the librarians themselves; as they alone understand the administrative needs of a library, and all the conditions of the problem. If half the study and ingenuity which have been expended on the classification of books, and on cabalistic notation to express the class, had been devoted to the problem of library construction, some brilliant results in this department of library economy would have been reached, and any further discussion of the subject at this time might have been unnecessary. Definite and varied plans, and many of them, are needed; for the conditions of libraries, as to size and financial resources, are so unlike that a design adapted to one library will, in its details, be unsuitable for another library. In this paper I can do little more than to lay before you a specific plan, based on certain assumed conditions, which will suggest what I deem to be correct principles of construction. The details of the plan, however, can be modified to almost any extent in their application to other libraries where the conditions are different.

In the construction of dwelling-houses an infinite variety in detail is admissible, each one of which, in its own place, will be good; yet there are essentials which in no instance may be

neglected, such as providing sufficient light, proper drainage, safe heating, and healthful ventilation. The omission of these requisites is not compensated for by an ornamental façade which gives a pretty effect from the street. The number, size, and arrangement of the rooms in each instance will depend on the conditions of the family; yet it is well that the kitchen have a proper relation to the dining-room, and the laundry be not an adjunct to the reception-room.

A board of directors before discussing plans should decide how much money they can spend on a building. They should take into consideration not only the present number of volumes, but the probable growth of the library, and all its present and future conditions. Provision should be made, in building, for the wants of the library for at least the next twenty years. It must also be understood that the building at some time in the future is to be enlarged; and, in selecting plans, it is well, at the outset, to decide how and where the enlargement may be made. Any plan which does not admit of enlargement without disturbing the convenience and architectural symmetry of the building should be rejected. The counsel of some experienced librarian will be of great assistance to the board in making or selecting designs.

A location should be selected much larger than the present needs of the library require, and where light and air will be accessible on every side. It is a great mistake to put a library building on a cramped lot, or in a block where light is obstructed; the future growth is hampered, and the risks from fire are greatly increased. If it be necessary to take a location in a block, let it be on the corner of two streets, where light may be taken in on three sides. It is not possible to have too much light in a library, provided it be side-light. Sky-light should not be used unless it be necessary from the want of side-light. The north light is the most desirable; and hence the reading-rooms should be placed, if possible, so as to use that light.

The choice of material to be used in the construction of a library building may depend on the cost, or the kind of material which is most accessible in the locality. Where stone, brick, and wood are equally available, stone is the best material, brick the next best, and wood the worst. Stone undressed and laid in irregular rubble-work is very tasteful, and is not expensive. In some localities where there are no stone quarries, there are boulders or cobble-stones, which, when broken and laid in rubble-

work, make a beautiful building material. If it can be afforded the interior should be finished in hard wood, and the floors, in any event, should be of well-seasoned maple laid in narrow strips.

If any building should be practically fire-proof it is a library building. A perfectly fire-proof structure is expensive; but there are now methods of making buildings practically incombustible—by the use of porous terra-cotta in the ceilings and partitions, and laying the floors over a bed of mortar—which are not expensive. These devices, tho they are not a complete protection, delay the fire until it can be extinguished. A wooden library building without any of the modern fire-proof devices is a fire-trap, and its construction is a crime.

For developing the plan I propose to lay before you we will assume that the directors of a library of 10,000 volumes propose to erect a library building. The annual rate of increase is 1,000 volumes, and hence in ten years they will have 20,000 volumes, and in twenty years 30,000 volumes. In all probability, when the books are housed in a safe and convenient building, the rate of growth will go on increasing, and the library will have 30,000 volumes in fifteen years; for such a building attracts to itself donations. To erect a building with a capacity of less than 30,000 volumes under such circumstances would be neither prudent nor economical. As to the style of the exterior elevations I have some opinions, but shall say nothing concerning them here; for it is a matter of taste and expense which the architect will treat when he has before him the limitation of cost which the directors will give him, and the plan of the interior which I propose to furnish.

For the main floor the height of the ceiling should not be less than 15 feet, and need not be more than 16; and I recommend the following subdivisions or rooms: (1) A room for the storage of books, *without alcoves or galleries* (a description of the room I will give presently); (2) the librarian's room, which opens directly into the book-room; (3) the delivery-room, where applicants apply for and receive books for home use; (4) the general reference-room, where readers may use books for study on the premises, and which is in immediate connection with the library proper; (5) a reading-room for periodicals and newspapers; (6) a reading-room for ladies, if such a room be thot desirable by the directors; and (7) the directors' room,

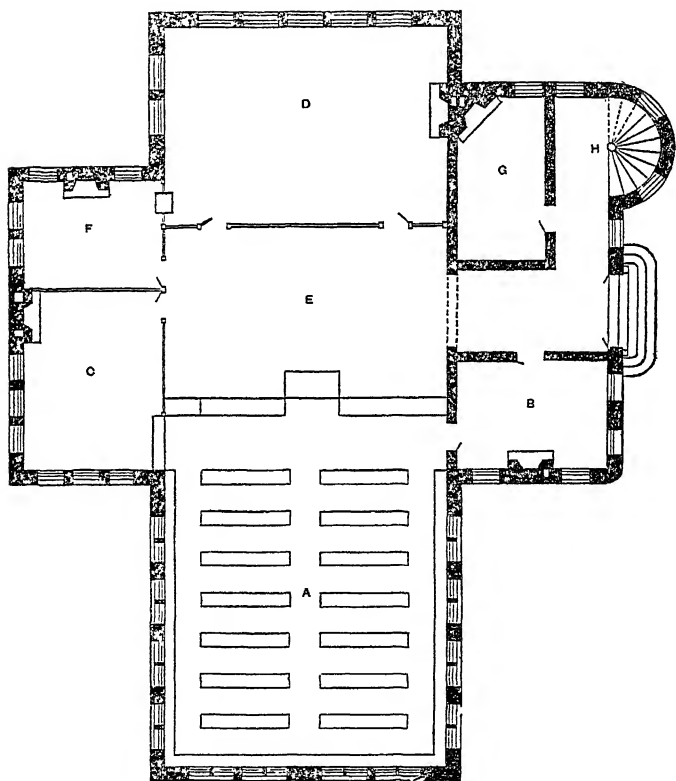
which can also be used for the shelving of fine-art books and other works of especial value.

I have spoken of these subdivisions as rooms; yet, excepting the librarian's and directors' rooms, where talking must be done which had better not be overheard, they need not be separated by partitions extending to the ceiling. Half partitions or screens are preferable, as they will allow a more equal distribution of light and give the whole floor the effect of one room. The basement, where will be the heating apparatus, water arrangements, bins for fuel, etc., should be mainly above ground, in order that it may be dry, and it should be well lighted by windows. There are many purposes—some of them will be mentioned later—for which such a basement will be found useful. A low, dark, damp basement has no function in library economy except to rust out the heating apparatus and water-pipes, and to be a general nuisance. A dry basement is also needed to protect the books from dampness. The two natural and most destructive enemies of books are dampness on the one hand and excessive heat on the other.

The building we have thus far considered has only one story and basement. If this be all the directors can pay for they can stop here. A library, however, has wants which are not yet provided for. It should have a spacious room where classes from the public schools may come and receive instruction from the librarian and their teachers in the use of books and familiar lectures on special topics. Rooms are also needed for such collections as public documents, patent publications, and for the sorting and storage of pamphlets, newspapers, and duplicates. A second story will provide for these wants, and will give the building a more symmetrical and tasteful appearance. A second story, as will be later explained, will furnish space for the reading and reference rooms when it becomes necessary to use these rooms on the first floor for books; and by this means the enlargement of the building may for a time be postponed. In the meantime, an apartment in the second story can be used as an audience-room which will accommodate several hundred persons. Access to the second story will be by stairs in an outside tower, shown at "H" in the ground-plan before us.

It will be seen that the outline of the plan is a cross. This form of ground-plan has not been taken for its mediæval and ecclesiastical associations—it being that of the old cathedrals—

but for the reason that it gives the most convenient arrangement of the rooms, the most economical subdivision of the space, and the best distribution of light. It is a form of structure which can be enlarged in several directions without disturbing its architectural symmetry, the convenience of the internal arrangements, or obstructing the light. In breaking lines in the façade, it will commend itself to any tasteful architect. In speaking of its several parts, it will be convenient, if not strictly correct, to use the terms applied to a similar form in ecclesiastical architecture—namely, nave, transepts, and chancel.



MR. POOLE'S PLAN FOR A SMALL LIBRARY BUILDING

The nave, to its interception with the transepts, is a square, and the transepts and chancel are one-half of the same square. The right transept, however, in this instance, has been lengthened a few feet in order to give space for the tower. If the nave be thirty feet square, the transepts and chancel will each be thirty by fifteen feet. The actual size of the building, therefore, will depend on the size of this initial square in the subdivision marked "A," which will be used for the shelving of books. The larger this measure the larger will be the storage capacity of the room; and the size of all the other rooms will be increased in the same proportion. There is, perhaps, no more equitable rule for adjusting the size of the rooms than making them proportional to the storage capacity of the book-room. If the nave, to the intersection of the transepts, be twenty feet square, the room "A," 20 by 26 feet will shelve 12,500 volumes; if it be thirty feet square the capacity of the room will be 27,000 volumes; if it be forty feet square the capacity will be 46,000 volumes; and if fifty feet square the capacity will be 70,000 volumes. If the desk and the counters be thrown forward twelve feet, instead of six, towards the center, the capacity will be 75,000 volumes. It is not practicable that a room for the storage of books, even if light be taken in on both sides, should be more than fifty feet wide; for it is found that side-light, at a greater distance than twenty-five feet from the windows, becomes too feeble for library use. The rule by which the capacity of any room shelved in this manner may be estimated, is to multiply the area of the floor, in square feet, by twenty-five; and the result will be the number of volumes the room will contain. It is assumed in this statement that the size of the volumes will conform to the usual average of size found in general libraries of this class. The rule would need to be modified if applied to a library which had an unusual proportion of folios and quartos; and, on the other hand, to one having only octavos, twelvemos, and sixteenmos.

We will assume, for our purpose, thirty-two feet as the size of the initial square already described. The left transept and chancel would then be each 32×16 feet, and the right transept 40×16 feet. Six feet being added to the initial square, as shown on the plan, the book capacity of the room "A," by the rule just stated, would be in volumes as follows: $32 \times 38 = 1,186 \times 25 = 29,650$ volumes. The works in bibliography shelved

in the librarian's room, and the choicer books shelved in the directors' room, will bring the capacity up to 30,000 volumes, which was the number we proposed to provide for.

The librarian's room, 12×16 feet, is indicated on the plan by the letter "B"; the reference-room, 20×16 feet, by "C"; the reading-room for periodicals and newspapers, 32×22 feet, by "D"; the delivery-room, 32×20 feet, by "E"; the ladies' reference-room, 16×12 feet, by "F"; and the directors' room, 20×10 feet, by "G."

The light in the book-room, "A," is taken in by windows above a row of wall-cases which extend around the room. All the other windows of the building will be of the usual length. The wall-cases are eight feet high, have a ledge three feet six inches from the floor, are fifteen inches deep below the ledge, and nine inches deep above the ledge. The wall-cases are for shelving folios and quartos. Octavos (including royal octavos), twelvemos, and smaller volumes are shelved in cases standing free of the walls, as indicated in the plan, open on both sides, and without doors or glass fronts. These cases are also eight feet high, and books on the upper shelf can be reached by a person of full stature without step or ladder. They are sixteen inches wide (the base being two inches wider), and are divided lengthwise thru the middle by a half-inch partition, which serves to stiffen the cases and prevents them from spreading laterally under the weight of books. The depth of the shelves, therefore, is seven and a half inches, which is enough for a royal octavo volume. It is a waste of expense and a waste of floor-space, to make double cases more than sixteen inches wide. Cases much wider may be seen at the branches of the Boston Public Library, the Roxbury Athenaeum, and elsewhere. The material of the cases and the shelves should be ash, or some wood harder than pine; and no paint should be used in the finish. The shelves, which should be three feet, and not be more than three and a half feet, in length, are movable, and are supported on pins made of hickory or other hard wood. The head of the pin is put out of the way by being cut into the under side of the shelf. The sharp edges on the front of the shelves should be taken off; for if allowed to remain they will cut the bindings. Cases with movable shelves cost no more than cases with fixed shelves, if made by contractors who have machinery for boring

the holes and making the pins.¹ In this plan the central bookcases are ten feet in length, and stand three feet apart. The side aisles between them and the wall cases are three feet wide, and the centre aisle is three and a half feet wide. Filling up the centre aisle by lengthening the cases would increase the shelving capacity of the room 3,700 volumes.

The counters, where books are given out to borrowers, and the desk where books are returned, separate the delivery-room, "E," from the book-room, and cut off the public from access to the bookcases. The counters are two feet wide and the desk is three feet wide and six feet long. In a library of this size one window or opening, in front of the desk, is enough for receiving books; but in libraries of large circulation a double desk, twelve feet long, and two windows, are needed—the men being served at one, and the women at the other. With this arrangement men receive books at one counter and women at the other counter. The slips for the books they borrow are kept in separate boxes on the desk, so that two persons can work at the same time in receiving books. The slips are readily separated, as the registry number of men (which appears on the slip) is always an odd number, and the registry number of women is an even number. This is the system in use at the Chicago Public Library where the daily average circulation is about 2,000 volumes, and on some days runs up to 3,600. This number of books could not be taken in at one window. We have, besides, a juvenile desk and counter where the young people are served. With these facilities we are able to meet the largest demands made in the circulating department.

It will be seen that the librarian's room, "B," communicates directly with the book-room. Here will be shelved the bibliographical books, and here the cataloging of the library will be done. In a larger library a separate room for cataloging is needed; but it is not required in a library of this size. A room which we call "the shop" is also needed, where books may be unpacked, mended, relabeled, scheduled for the binder, and, after being cataloged, prepared for the shelves. A room for this work may be fitted up in the basement, if it be light and dry; and some of this work may be done at tables in the rear of

¹In my paper on the "Organization and Management of Public Libraries," in the U.S. Bureau of Education's "Report on Public Libraries," 1876, p. 485, will be found working drawings, and a full description of these cases.

the bookcases. It will not be necessary to put in all the bookcases shown in the plan until they are needed, and until that time arrives, there will be space for tables in the rear of the bookcases.

The general reference-room, "C," where books may be studied on the premises, is adjacent to the book-room, and readers have easy access to the attendants. It is a question whether some books of reference, such as one or more encyclopaedias, and a few dictionaries of biography, art, and science, may be shelved in the reference-room, and made accessible to readers without application to the attendants. Will the books be safe? In some communities, where the readers are not many and are personally known to the attendants, they might be safe; but in larger communities, where not one reader in ten is known by the attendants, the books will, if they are made thus accessible, mysteriously disappear. That has been our experience in Chicago, and hence we require a written application signed by the true name of the applicant, and giving his or her residence, for every book used at the reference tables. These applications are kept in pigeon-holes, as a voucher for the book or books, and are canceled when the books are returned to the attendant's desk.

The reading-room, "D," is for the use of periodicals and newspapers. It is still an open question whether it is advisable to furnish newspapers which give simply the current news of the day. The argument in favor of furnishing newspapers is that they bring many persons to the library who would not otherwise come; and that these readers learn in time to make a better use of their opportunities. The argument against the custom is, that newspapers take up a good deal of space; that they are so common in the community and cheap that libraries need not provide them; and that in cities and large towns they bring a class of readers who, in their dress, manners, and habits of personal cleanliness are repulsive to the average frequenters of the library. Every library, however, should take and bind its local newspapers. The general practice, nevertheless, in the western states, is to furnish a liberal supply of newspapers. The best method of keeping them is on stands, and if the space be limited some of them must be kept on files. The current numbers of periodicals are safe in some libraries if they are kept in racks on the reading tables. In other libraries they would be stolen. If a large number of periodicals be taken and

placed on the reading tables, it is difficult for a person to find the one he is looking for. In the larger libraries it is therefore the safest method, and the one most convenient for readers, to keep periodicals in pigeon-holes behind the counter, which are numbered, and that they be applied for by their numbers, the applicant writing on the slip handed in his name and residence. The application slip is kept in the pigeon-hole from whence the periodical came, until it is returned, and then this slip is canceled.

The delivery-room, "E," the ladies' reference-room, "F," and the directors' room, "G," are so clearly shown on the plan as to require no further explanation. The light in the delivery-room will be ample, as the partitions or screens between it and the reading and reference rooms are only five and a half feet high.

With nearly every new board of directors or trustees there is a feeling that a separate reference-room for ladies is needed; and it is in deference to this sentiment that I have designated such a room. My experience teaches that this want, so far as it relates to any scholarly purpose on the part of the ladies, is purely imaginary. Ladies who come to a library for study prefer to use the general reference-room, where they can be near the books and can consult with the employes of the library for the help they need. They have no objection to sitting at a table in a well-regulated room, even tho a gentleman may be reading at a table near them. The class of ladies who would be especially accommodated by a separate reference-room would use it for other purposes than study. Some years ago, in assigning rooms in the new Public Library building in Cincinnati, one was set aside as the ladies' reference-room. It soon became a rendezvous for social purposes, and was used by the persons who frequented it for talking over society matters and exhibiting the bargains they had made in their shopping excursions. The experiment of furnishing these accommodations was not thot to be a success, and the room was assigned to another purpose. At Chicago, by the wish of the directors, the experiment was again tried; and, as the ladies who came for study did not use the room, it was given up.

Whenever it is deemed advisable the space on the plan allotted to the ladies' reference-room can be added to the general reference-room.

I have remarked that an essential feature in the plan of a library building is that it can be enlarged without disturbing its architectural symmetry, or requiring its internal arrangements to be changed. This plan admits of enlargement by several methods which will suggest themselves to any competent architect. The book-room may be extended in length, say thirty-two feet, and this addition brought out to the right and left in line with the transepts. This addition will increase the capacity of the book-room threefold, and the esthetic features of the building will be improved. Again, the left transept may be extended to any distance required, and, turning at a right angle, be extended parallel to the book-room. Before, however, any addition is made to the structure the reading and reference rooms may be removed to the second story, and the space vacated be given to bookcases. This change will increase the book capacity of the floor nearly 30,000 volumes. The desk and counters will be placed at a right angle to their present position—the desk facing the main entrance, and the rear of the counters standing about ten feet from the line of the present reference-rooms.

I shall speak only in general terms of the cost of a building erected on this plan. A stone building of two stories, with tasteful elevations, an interior of hard-wood finish and of practically fire-proof construction (as already explained), and with such details of taste, ornamentation, and convenience as belong to a first-class structure, will cost \$50,000. A one-story stone building on this ground plan, without hard-wood finish or fire-proof construction, can be built for \$15,000. The size may be reduced, a cheaper material than stone may be adopted, some of the rooms may be left out, and other modifications be made in the details which will further reduce the cost. A local architect, who has all the conditions of the problem before him, is the person to be consulted with reference to cost.

I will detain you no longer; and, if any points have been omitted upon which I ought to have spoken, they will appear in the discussion which is to follow.

HOW TO PLAN A LIBRARY BUILDING

When Mr. Pendleton was writing he did not expect any community of 1,000 to 2,000 people to aspire to a separate building. If they acquired a room in a suitable location he was satisfied. But by 1899, the little library had begun to come into its own, and such economical one-room buildings were being built as Mr. Henry M. Utley so clearly pictures here.

A sketch of Mr. Utley will be found in Volume III of this series, *The Library and Society*.

The suggestions here set down are intended for the benefit of a fairly prosperous and conservative community of 1000 or 2000 inhabitants or upwards. It is not necessary to say that any one who chooses to rear a monument to himself in the place of his nativity, in the shape of a library building, with his name cut in marble over the front door, is privileged to spend as much money on it as he may choose. If a town with plenty of means, public spirit, and good taste, decides to do something conspicuous in the way of a library building, that is one thing. But if a town, appreciating the value of a free public library, maintains one at some sacrifice, and thinks on the whole such library ought to be under its own roof, it naturally wants to get the most for its money. These remarks are designed to help out the latter.

The lot should be 100 feet wide and of abundant depth. If located on a street corner, 20 feet less in width will answer. Place the building midway on the lot, and this will leave plenty of space on each side for light and circulation of air. The dimensions of the building to be 40 feet front by 60 feet in depth and one story high. Excavate under the front 40 feet of the building and carry the basement walls up four clear feet above the grade of the lot. The basement will provide space for heating apparatus, fuel storage, closets, and miscellaneous storage. There will be an outside entrance to this at the side of

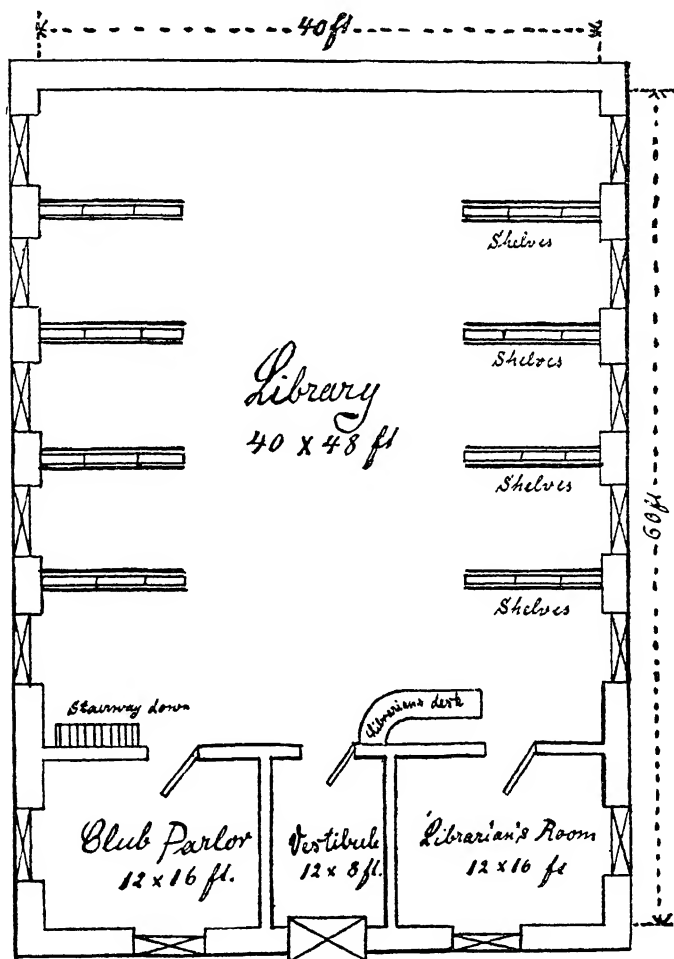
the building and an inside entrance from the library room. The only entrance to the library will be at the center of the front thru a vestibule 12 feet in depth and 8 feet wide.

As the building is low at best, it is desirable to avoid a squatty appearance. This may be done as to the sides by a suggestion of the French roof, or dormer window relief of the roof line. The front may, perhaps, be relieved by a pretty porch. Any architect will be able to devise methods of giving the structure a pleasing effect without adding to its cost.

A partition across the building 12 feet from the front wall will leave a space to be divided as follows: 8 feet in the middle for a vestibule and the remaining 16 feet on each side, forming two rooms, each 12 by 16, will open into the library. One will serve for an office for the librarian and the other for a club parlor, children's room, or any other desirable purpose. The remainder of the building will be a single room 48 feet long by 40 feet wide and 16 feet high. There will be five windows in each side opposite each other, each $4\frac{1}{2}$ feet opening in the clear. The window sills will be 5 feet from the floor and the windows will extend to the ceiling. This arrangement will afford abundant natural light to all parts of the room. The room will be open in the center and divided into alcoves at the sides, by the bookcases, which will be four in number on each side and stand at right angles to the wall between the windows. There will also be bookcases against the wall under the windows. The projecting bookcases will be divided into three sections of 3 feet each, and will be double cases, having shelves 8 inches wide on each side. They will be 7 feet high. The space above the cases will be left open, but may eventually be used for a gallery and a second tier of bookcases if desired. The end wall may be utilized for bookcases thruout its entire extent. The shelving capacity of such a bookcase arrangement as described would be fully 10,000 volumes. If enlargement becomes necessary, the end wall may be torn out and the length of the building extended as far as desirable.

The bookcases will project into the room 10 feet on each side; this will leave 20 feet clear space in the middle of the room for its whole length in which can be placed reading tables for periodicals, etc. The alcoves between the bookcases are each 8 feet in the clear, and this affords room for a small table at which two persons could sit without interfering with approach

to the book shelves. This arrangement throws all the book shelves open for free access by the public. If it is desirable to protect specially valuable books, they may be placed in cases fitted with glass doors which can be kept locked.



ONE ROOM LIBRARY BUILDING

The librarian's desk is placed adjacent to the librarian's office and cataloging room, and immediately beside the exit and entrance. This is convenient for people coming in to return books and for those going out to have books charged. This arrangement affords economical administration. One librarian can take care of the room, having complete view of every part of it, except the recesses of the rear alcoves. If desirable, these can be brought into view by a combination of mirrors. In a small place such as this library is designed to serve, most of the people will be personally known to the librarian. They may be safely trusted to go directly to the shelves to make their selection of books. Probably also they could be trusted to replace their books properly when returning them, in which case the librarian would be relieved of much labor. With the people thus waiting upon themselves, the expense of employing library attendants would be reduced to a minimum.

The dry-goods-box shape of the building is the most economical form of construction that is possible. The cost of material and construction varies in different localities and at different times. Probably such a building could have been erected a year ago at less cost than today. I have submitted the foregoing details to an architect and requested from him an estimate of cost of erection and furnishing of such a building in Detroit in the spring of 1899. He assures me that the building could be built with limestone foundation, cut stone sills, brick walls, roof of redwood shingles, interior, including bookcases, finished with Georgia pine, quartered oak desk, tables and chairs, all material and workmanship to be of the first class, for \$3500 to \$4000. This was about my own estimate, but mine was based upon knowledge of the Jonathan Hall Memorial Library, erected at Ridgeway, Lenawee County, Southern Michigan, in 1887. This latter building cost \$3500 complete and furnished, the interior finish and bookcases being of butternut. It has not the capacity of the one I have described; but, to offset that one must bear in mind that building construction cost much more in 1887 than now, and that this library is not of the plain rectangular shape of the one above outlined.

It is certainly desirable to get a library out of rented quarters just as soon as possible. The place usually chosen for such purposes is in a down-town business block, over a store and perhaps in an office building or theater. In such a location it

is peculiarly exposed to danger from fire. Quarters of this kind are sure to be dark and dingy, utterly without ventilation of any kind, inconveniently arranged, and about as ill-adapted to the purpose as they could be made. Is it not a question of economy and good sense for any town which has a library in rented quarters to place the same under its own roof at the earliest opportunity?

There are many advantages in the style of building here suggested. There are no stairs to climb. Everything is on the ground floor. The whole library is in one room and is conveniently arranged so that the people may go directly to the shelves and select the books which best please them. There is abundance of light and fresh air. The fewest possible number of library employes is required under such an arrangement, and so there is economy of administration. The pride which the people of a town will naturally feel in having a library building of their own will be an incentive to them to use it freely. And, lastly, the cost of a building planned on the lines here suggested places it within the reach of almost every community.

Usually land is cheap in villages and small cities. It is not necessary to settle upon the exact geographical center. The library needs to be no more centrally located than the school-house. Under some circumstances there may be an advantage in placing the two temples of learning near each other. In any case the cost of lot would not cut much of a figure. There can be generally found some public spirited person or persons who individually or collectively will provide the necessary ground. With a little judicious agitation of the subject the taxpayers can be brought to agree that if it is worth while for the town to maintain a free public library, it is surely wise and economical to place it in a home of its own.

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TRANSFORMING A DWELLING HOUSE INTO A LIBRARY BUILDING

ANDREW JACKSON HOUGHTON MEMORIAL BUILDING:
HOME OF NORTH ADAMS, MASSACHUSETTS,
PUBLIC LIBRARY

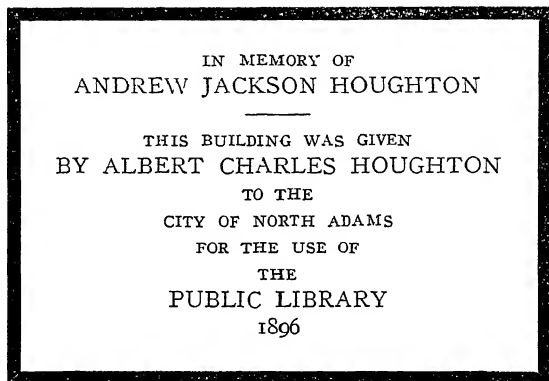
A very interesting experiment tried by towns needing only a small or medium sized library is the transformation of a dwelling house. Tho buildings originally designed for libraries seldom would be mistaken for residences, some very attractive and practical transformations from residences to libraries have been accomplished. An excellent description is this, by Annie B. Jackson, from *The Library Journal*, 1900 of a building which evidently has all the architectural dignity which could be desired.

Miss Jackson took her Master's degree at Smith College in 1885, was in the first class of the Library School at Columbia, served on the Book Committee of the North Adams Public Library, 1885-96, as President of the Board of Trustees, 1896-1926, and since 1926 has been Curator of prints.

By private generosity or public action there are many libraries that from time to time are confronted with the necessity of adapting to library uses buildings originally intended as private residences. Such adaptation is not an easy task; it offers more problems, and more difficult ones, than the planning of an original library building involves, and the economical hopes generally entertained at the beginning are usually doomed to disappointment. Yet excellent and attractive results may be obtained in such adaptation, and in the case of handsome and substantial buildings the total cost of extensive alterations is far below the value of the completed structure.

It has been thot, therefore, that it may be of interest to librarians to describe in some detail the manner in which one dwelling house was transformed into a library building, satis-

factory in plan and most attractive in effect. The cost of adaptation is given in analysis, and the results achieved are summarized as definitely as possible. The building in question houses the Public Library of North Adams, Mass., and bears on its wall near the delivery-desk a beautiful bronze tablet, placed there by vote of the council of the city of North Adams, which reads as follows:



The Houghton Memorial Building was originally a dwelling-house, the most costly ever erected in North Adams. It is a substantial brick mansion, approximately 60 feet square, having two stories and the high Mansard roof in vogue some thirty-five years ago when the house was built for Mr. Sanford Blackinton, then the most prominent of North Adams manufacturers. Mr. Blackinton intended it for a family mansion which might continue to be used by his descendants, but on the death of his widow, a little more than four years ago, the house came into the market. Because of its site it was felt by every one that the building should become a public building of some sort. North Adams is built in a series of terraces up the hills from the two branches, north and south, and again from the westward-flowing Hoosac after the two branches unite in the middle of the town. The Blackinton house, now the Houghton Memorial Building, stands just where the main business street, mounting the first eastern terrace, broadens into an open square; the site of the building being the southeastern corner of this square, two churches occupying the north and south sides. Another former dwelling house stands on the northeastern corner, and it was in

this that the library had been housed for six years previous to its removal into its present quarters.

At the time when this building, so finely situated, was thrown on the market North Adams had but just organized its city government, and one of the earliest acts of its first mayor, Hon. A. C. Houghton, was to buy the Blackinton mansion and convey it to the city absolutely, with no condition specified in the deed, but with an accompanying letter expressing his wish that the building be used for the public library and for a local historical society, and that when so used it should be known, in memory of his brother, as the Andrew Jackson Houghton Memorial Building. This was early in 1896. The building was thus saved from perversion to other ends, but nothing was done to fit it for library uses until the summer of 1897.

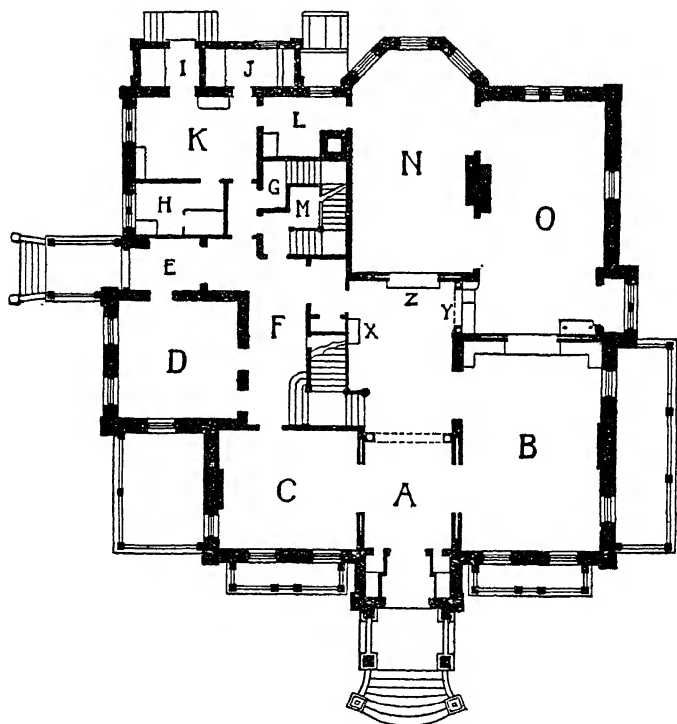
In July, 1897, Mr. Houghton, in addition to the gift of the building, offered to pay \$10,000 toward the necessary repairs and alterations. It was recognised that this sum would not cover the cost of furnishings in addition to alteration, but that a further sum for this purpose would have to be asked of the city. At this time, however, it was hoped that the \$10,000 would prove ample for rearrangement. Unfortunately, after the work had been going on for some months, it was found that the item of repairs was far larger than anticipated, the house having suffered an accumulation of disasters from long neglect. After some inevitable criticism the city council voted \$9000 additional, to complete alterations and provide furnishings. A summary of expenses, classified as well as could be done from bills rendered, is given herewith:

Carpenter work and material, including two new stair-cases	\$4,366.27
Plastering	1,450.23
Mason work	624.18
Fitting vault	150.00
Painting interior and finishing woodwork	676.90
Exterior repairs and painting	880.25
Work and material for walk and fence, north entrance	205.18
New roof	1,529.07
Skylight	297.21
Heating plant	2,395.00
Plumbing	1,122.99
Electric work, including repair of old fixtures	922.81

Electric light fixtures, new	410.00
Hardware	355.71
Brass book-lift	217.45
Floor-covering and window-shades and labor	734.49
Stack (nine floor cases)	575.00
Tables, chairs, etc.	517.58
Miscellaneous supplies, labor, etc.	117.49
Architect, plans and supervision of work	769.52
Memorial tablet and setting	116.35

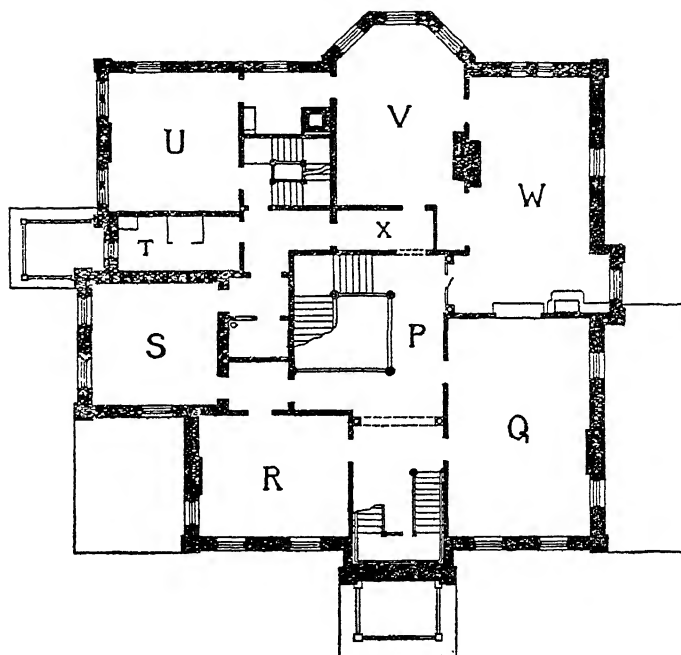
\$18,433.68

That the necessities of the case may be better comprehended, plans are given of the two main floors as they are today:



FIRST FLOOR PLAN

- A. Main hall and delivery-room, 11 x 36 (catalog-case at *x* and receiving and delivery desks at *y* and *z*)
 B. General reading and reference room, 18 x 28.
 C. Magazine reading room, 16 x 19.
 D. Newspaper reading room, 16 x 16.
 E. North entrance, from E. Main st.
 F. Corridor to stairway
 G. Stairway to basement.
 H. Staff toilet room, 6 x 11.
 I. Rear entrance
 J. Fireproof vault, 5 x 11
 K. Unpacking and work room, 11 x 15.
 L. Store-room.
 M. Janitor's stair-way.
 N. and O. Book-rooms, 16 x 30 each.



SECOND FLOOR PLAN

- P. Hall.
 Q. Proposed children's room.
 R. and S. Fort Mass. Histor. Soc. rooms.
 T. Toilet-room.
 U. Public documents.
 V. and W. Additional book-rooms.
 X. Rear upper hall.

Referring to the plans, the chief changes are as follows:

The second archway was cut from B into hall A, the wood-work (black walnut) about it being transferred from the former entrance to O, the whole end of which room was taken out. The square bay noticeable in one corner of O on the plan was a doorway leading to a *porte-cochère*. This door was replaced by a window and transferred to the north side at B (formerly a lavatory), where an entrance was made direct from East Main street, the lot having about equal frontage on Church and East Main streets. It was impossible to enlarge D, since it is surrounded by brick walls, the support of a five-story tower. An opening was cut northward from the staircase landing and entrance gained to this side thru corridor F, formerly a closet. There were, it may be said in passing, sixteen such closets to be disposed of in some way on the two main floors. The back stairway at M could not be discontinued because of the wish to fit up a janitor's apartment on the third floor; but it had to be rebuilt entirely, having previously been a winding stair. The chimney between N and O was left both for better ventilation and to avoid possible weakening of the structure, but it was so cut up into small flues that it would not answer for the larger heating plant required. A new chimney was therefore put in, running up thru L. K, the former kitchen, after having toilet-room, H, taken from it, was reserved for a work-room, boxes coming in by way of entrance I. As to the vault, J, we were fortunate; it was a pantry, probably built for cold storage, being brick-walled all about and but one story high, so that with comparatively little expense an exceptionally commodious fireproof vault was obtained.

On the second floor, entrance was opened up from front hall, P, to S, thru two closets, the open passage gained by tearing out entirely the wall of the closet next the staircase, and replacing it by continuation of the balustrade, making far more effective the really fine stairway of handsomely carved black walnut. Over the square well thus formed a glazed sash was inserted in the ceiling, above which is a shaft conveying light from a well-planned skylight in the roof. This proved one of the happiest of the architect's suggestions, since the great drawback had been the darkness at the central point of the lower floor, exactly where we wished the delivery desk. To return to the second floor; S and R, in accordance with the letter accompanying the

gift to the city, were assigned to the use of the Fort Massachusetts Historical Society, whose very attractive loan collection forms an admirable adjunct to the library.

The main staircase was not continued beyond the first flight. In order to admit of any public use of the third floor, it became necessary to have means of approach other than the one back stairway. The light open staircase at the front of the upper hall P was therefore constructed. The plan is here at fault, since there are two high narrow windows opening on the balcony over the main entrance. The staircase landing here is sufficiently high, so that an alcove is formed under it next these windows. The room Q resulted from tearing out partitions which formed a dressing-room and two large closets. Rooms V and W had partitions and closets removed, so that they correspond very nearly with the book-rooms below.

The plan was, of course, considered of removing the floors of V and W and making a three-story stack up from N and O, but was dismissed on account of the extra expense involved. So far there has been no reason to regret this decision, for it seems more feasible when needed to build on a book-room to the south of O and W, the grounds about the house being ample for this, and leave the structure itself unimpaired. V is already filled with shelving capable of holding some 6000 volumes, very little of which is yet in use. W is soon to be utilized as a study for teachers and members of study clubs, and this too can be shelved when necessary; tho by a test made while alterations were going on, it was found that but five cases could be carried by this floor as against six in the room below. It will nevertheless shelve some 8000 volumes.

In U the public documents are so shelved as to be convenient of access, a table and chairs being provided for their use in the room itself. T, the toilet-room, was the bath-room on this floor of the house. The plumbing connections, it will be noticed, worked out very well, for the bath-room of the janitor's flat is just above T, the staff toilet-room H, on the main floor, nearly beneath, and a men's lavatory in the basement corresponds exactly in position with T. This basement, by the way, is practically little but a dark cellar. Aside from the lavatory mentioned, the room taken by the boilers and those for storage of coal, the rest is of little avail except one room under K, which serves for the janitor's cellar, connecting by lift (running up

thru L) with his kitchen on the top floor. The eastern half of the top floor was converted into this dwelling for the janitor, consisting of five rooms and bath. The tower ascends above S, a nicely finished room is over R, not yet assigned to any special use, and the remainder of the floor is in a well-lighted large hall, capable of seating about 150 persons; well adapted, too, for exhibitions of pictures

The heating plant consists of two boilers of unequal size, the smaller alone serving for the milder days of spring and fall. An intake of cold air underneath both north and south sides of the west porch is provided, communicating with an air chamber which encloses a large coil of steam pipes, whence flues run to the different rooms of the lower floor. Since each room has an opening into a chimney, there is ordinarily sufficient draft to keep up a strong current, but in dull windless days the air from this chamber can be forced thru the house by a fan, which can be run either by steam or independently by a water motor. It is in the latter way that the building is ventilated in summer. On the upper floors radiators are provided direct from the boilers.

Concerning the furnishings, it was necessary to adapt them as far as possible to existing interior woodwork, particularly as some large pieces of furniture were left in the house to be used, if wished, for the library. To this provision is due one feature probably unique among libraries—there are on the main floor six handsome plate-glass mirrors, two pier-glasses in B and C, three over-mantel mirrors in B, C and D, and an immense hall mirror and hat-rack some 12 feet square moved from its original position in A (because of cutting the additional archway), into F, which by its reflection from windows of D, it helps to lighten. A huge sideboard was promptly turned over to the historical society, in whose rooms it is found very useful. One of two handsome bookcases was loaned to this society and the other placed in C, where behind its glass doors the more costly reference books are kept from harm.

For C and D magazine and newspaper racks respectively were bought, and chairs, but no tables; the chairs in both rooms being arm-chairs, in C of beech stained walnut and of a most comfortable design, those in D being oak of the "Windsor" pattern. B is the show room. Having been originally a white and gold drawing-room, the endeavor was made to keep it as

light in tone and as beautiful as was consistent with its constant use as a reading and reference room. The mirrors already alluded to had plain but very rich gilt frames of a kind which has never tarnished; the white marble mantel is finely carved, and there is an immense crystal chandelier which was carefully preserved and replaced; not to interfere with the effect of this chandelier, which, it must be admitted, is never used, the electric lights in this room were placed close to the ceiling. The necessary cases, tables, and (armless) chairs put in this room are of polished oak.

N and O were shelved by using floor cases of the L. B. stack construction, three sections running lengthwise of N and six crosswise of O, giving shelf-room for about 16,000 volumes. Room was left for the librarian's desk in the bay of N, while near the square south bay of O a polished brass book-lift runs to W above. In A the catalog case of 60 trays stands under the skylight at *x*; between this and the newel-post is a plain solid black walnut bench, and near it stands a tall revolving case which is kept filled partly with new books, partly with those on some topic of timely interest. The bench serves as a convenience in looking over a tray from the catalog, or for examination of the books as one turns the revolving case. A portion of the counter at *y* is hinged, and thru this "Pass of Thermopylac" people go to the shelves as they choose.

None of the walls of the house had ever been papered, but because of water-stains it was necessary to re-surface and in many cases to replace the plaster of both walls and ceilings, so much damage had resulted from a neglected roof. Instead of hard finish and fresco, it was decided to be best from a sanitary point of view to paint the whole surface of plaster thruout the house. This was applied also in the case of the stucco cornices, ceiling decorations, center-pieces, etc., in the main rooms of the lower floor. In B, which is flooded with sunlight, a tint of palest blue was chosen; in C, a darker room with dark wood, a warmer tone of cream was used, while hall and book-rooms were cream-white. The second floor rooms were all given the same cream-white except Q, which has a coat of delicate apple-green that it may look as springlike as possible when used, as we hope soon to have it, for a children's room.

The floor covering is the same thruout the public rooms—an inlaid linoleum of small pattern in three shades of brown, which

harmonize admirably with the prevailing walnut finish. Rubber stair treads were used for the main staircase.

Electric light fixtures, simple but beautiful in design, and suited to the uses of the various rooms, were provided in all the main rooms, while in the lesser used rooms it was found possible to fit up for electricity the chandeliers (previously for gas only) which were already in the house. Two beautiful bronze newel-post lights had their gas burners replaced by incandescent bulbs.

Among the smaller furnishings, mention might be made, for others' benefit, of the umbrella holders fashioned of wood pulp, in shape and size very like the popular drain-tile umbrella stands, but much lighter in weight and of a dark brown color, well suited to this particular building. They have the merit of being inexpensive, and have been found to serve another purpose as well, that of waste-baskets which will not scatter their contents.

The architect who prepared the plans and gave his oversight to their successful carrying out was Mr. Edwin Thayer Barlow, of North Adams. The technical furnishings, including stack, tables, and chairs, but not the cases in the reference room, were from the Library Bureau. All the work was carried out by North Adams firms.

While there is undoubtedly some waste space, and more partitions than one might wish, the trustees can truthfully say, as they do in their last report: "The Houghton Memorial Building continues to be a source of pleasure to all who visit it, and to the staff of the library as well. The arrangement of space has worked well in regard to the administration of the library, and no change seems needful. And they are ready to confirm the opinion of nearly every stranger who enters the doors of the Houghton Memorial Building, that it makes 'the most homelike library building ever known.'"

RURAL LIBRARY BUILDING

Perhaps quite as frequently is the library use of a dwelling house a matter of extreme simplicity as it is of such massive elaborateness as the Houghton Memorial Library described in the foregoing article. A fascinating example of homelike qualities beautifully suited to the needs of the community is the library in Hyannis, Massachusetts, described by John Adams Lowe. This article in *The Architectural Record* was written after five years experience with rural libraries as agent of the Massachusetts Free Public Library Commission.

Mr. Lowe's library experience includes five years as librarian of Williams College. From 1919 to 1931 he held the position of assistant librarian of the Brooklyn Public Library, and he is now librarian of the Rochester Public Library. He has been a member of the American Library Association Council, is author of *Public Library Administration* (1928) and compiler of a number of bibliographic works.

The ideal library is that which stimulates its community to use print intelligently and which teaches a genuine love of books. Library service today demands of the librarian an intimate first hand knowledge of what is available in print, an understanding of the needs of the community to be served, and an ability to bring to the needs of the one the resources of the other. All of us can instance cases in small towns in which a true book-lover has aroused genuine reading habits in others with only a few well selected books. The same volume carried its message and inspiration to many readers, each of whom put upon it his own interpretation. We trace character development in many such cases. No higher ideal can come to any librarian than to foster ideas and build men and women.

The librarian may be 75 per cent of the library and the books and the building the other 25 per cent, but I believe that

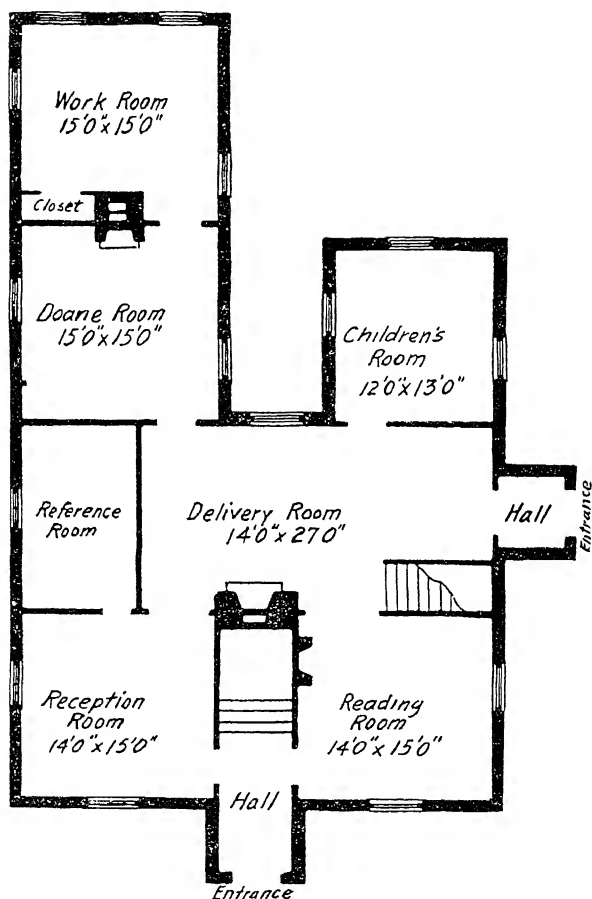
the building may share more of real service than is often the case in small country towns. One need is to make books available and attractive. Convenience has something to do with their use. The psychology in "lure of books" and "temptation to read" needs to be employed by the building as well as by the librarian. Its very arrangement may contribute much by being convenient and understandable. People in the country do not live in marble buildings, nor are they accustomed to lofty halls, divisions of columns with carved capitals, and decorated ceilings. They are not used to furniture of one pattern everywhere, except in such institutions as they know, the meeting house, town hall, and school room. Iron shelving in aisles too narrow to permit the use of the lower ones and too high for the upper ones to be reached are not like anything they use anywhere else than at the library. They are not happy in making themselves conspicuous by climbing up a broad flight of stone steps. If the temperature at the top of a reading room is 70 degrees when it is only 42 degrees where they sit, they will not readily go to the library to read. No, if the building is to share in the making of book-lovers, care must be given to details which will make it easy to bring people and books together.

To indicate what has been done in the way of library atmosphere in buildings filled with homelike qualities and yet which function completely in bringing library service to the people, I might suggest the very successful adaptation of a beautiful old court house building in Lenox, Mass., for a library building, or the church remodeled for the library at Warwick, or the Colonial cottages at Worthington and Leverett. But perhaps the library building at Hyannis, a village of Barnstable on Cape Cod, offers in some respects the best point of departure for the study of certain architectural difficulties common to recent town library buildings.

Possibly one of the unconscious drawbacks which we feel in many new buildings is the lack of the element of surprise. There is no allurements about them. You know from the many others cut from the same pattern that you will find the charging desk immediately in front of you as you enter, and that not always with the inviting hospitality which it might possess. If you seek a current magazine or the daily newspaper, you know exactly where it is to be found, and the same is true with a book.

Located on the main street of Hyannis, the old story and a half house with two ells at the rear makes an appeal which even a stranger feels. You never would mistrust it of being a library if it were not for the sign swinging from a bracket on a tree. Simple in line, "right down in the grass," as Pennsylvanians say, covered all over with shingles unstained, but weathered the wonderful gray of old wood at the seashore, a dominating chimney expressive of the forceful winds that incessantly blow around it, two inviting projecting porches or weather vestibules, and smiling white lined window casings, it presents an example of one of the best types of an old Cape Cod house. Moreover, its color charm is enhanced by silver willows of great age towering gauntly over it, their trunks a fascinating green and silver, with scant leafage of trembling silvery bits.

And you feel the same sort of an appeal when you push in the green front door and step in. Instinctively you pause just for a moment when you first visit it, for you find no guardian sitting commandingly in front of you. No, here is a stairway which, mounting its steep way, invites you to the study and rest rooms under the gable. You look thru a doorway at your left into a reception room. You feel like a late arrival, for here are groups of people in comfortable chairs, chatting, examining attractive books scattered about the tables. One woman with many bundles sits by the window, her shopping done, watching for the stage to take her back home. That girl minding the baby suggests that mother is selecting books. You step thru a door at your right and here you are in the old sitting room, very much as it has always been, save that the reading table in the center is a bit larger than one would expect, and that book shelves cover the walls of the room. It is quieter here than across the hall. You drop down for a minute in one of the rocking chairs by the open fireplace. And here for the first time you discover in another room the librarian, the real genius of the place, at her desk. Crowded about it are children and men and women, talking earnestly about the book each has chosen for himself. The children have their own room in an ell just back of the librarian's desk, to her left. To her right, in another ell, is a special collection room, and beyond that is the workroom. A tiny bedroom has been transformed for reference purposes, and in it one may study with almost as much privacy as in one's own sanctum.



PLAN OF THE LIBRARY

New buildings seem to require a small lecture hall. Well, here we have one. In the reception room chairs may be set up to accommodate literary societies and any groups of people who might naturally assemble here. Before the fireplace talks may be given on local history and current events, and groups of girls and boys, members of the library reading clubs, may meet with

the librarian as leader with the same informality and freedom that they do at the home of their friends. You find here bulletin boards and current events records, post-card displays and picture exhibitions, flower and bird contests records. Back of the library stretches under the trees a lawn and garden; and here the librarian plans to conduct book entertainments, receptions and teas. Visitors, new school teachers and lately arrived residents find themselves invited to this place with the cordiality of new-made friends. In such a place foreign-speaking citizens come unafraid and find an equality of citizenship which they appreciate. The machinery of a modern library system is all working here, but it never intrudes itself upon the patrons.

Whenever I visit this building I remind myself how well have been overcome some of the difficulties of securing the essential principles of library architecture. The librarian's desk completely supervises the reading rooms. This was made possible by widening two doorways and by giving it a central position. Moreover, the library is arranged for economical administration, and the fewest possible attendants are needed. Good natural light abounds in all parts of the building, and the system of ventilation is so simple and well known that it can be operated by any one who can open a window. The shelves are placed so that a person of medium height can reach any of them. And the building will provide for a number of years of growth.

In so many new structures the heating problem becomes a serious one. Lofty ceilings and complicated heating apparatus designed for buildings in city blocks make impossible in winter many a building upon which great amounts of money have been expended. Low ceilings and stoves are familiar to the people who live in the country, and with them they are skilfully successful. Fireplaces in towns where fuel wood is abundant will disperse the chill of a late spring or early autumn day, as well as give further attractiveness to the room.

For the fault committed so repeatedly of not providing shelf room sufficient for the books in new buildings I have no mercy. Plans frequently state a total capacity all too evidently carelessly estimated. The shelving actually built is filled with the books already at hand. No future growth has been planned for. This comes about frequently, because valuable space is used for decorative panelling. Sometimes when a stack is installed, the second

story is not built; and it is discovered later that the first deck is not strong enough to carry a second tier, that no space has been allowed for stairways. The result is that at great expense the whole thing has to be pulled down and built over.

Another lack in many buildings is sufficient work room for the librarian. At Hyannis the room is fifteen feet square, a baronial hall compared with many I have seen. Even in a small town library, for such purposes there should be provided a room large enough to admit comfortably a desk and a table and chairs, a closet for outside wraps, facilities for washing one's hands, and sufficient wall shelving to take care of several hundred books, those being unpacked, mended or cataloged. The light should be arranged so that the librarian may sit down and write, paste labels, mend books, and do a thousand and one things that have to be done in keeping a library going. If there is no other arrangement made for the storage of brushes, mops, and other tools used in and outside of the building, they should be provided for here. The town library does not need a "Trustees' Room," which figures on so many plans, but it does need a workroom for the real executive.

Unlimited funds are not always necessary to good library service. For years the Hyannis library association had slender funds, no town appropriation, but it begged its books from friends. Several years ago a loyal and foresighted trustee bought this old house and held it as a home for the library. At first the rent of one half of it helped support the library in the other half. When a bequest recently came to the association, with great wisdom they used part of it in remodeling the entire house for the library. It serves the fundamental purpose of a library. But in addition to this it is doing as much as a building can to perform its part of making readers and lovers of books in its community.

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HINTS FOR THE VILLAGE LIBRARY BUILDING COMMITTEE

In striking contrast to the simplicity of planning for a library as Mr. Pendleton (p.195) saw it, in 1877, we have Mr. John A. Lowe's thoro presentation in *The Library Journal* of the manifold problems facing the builders even of a small library under 20th century conditions.

Manifold problems confront the committee charged with the erection of a building in which the public library is to be housed. And, contrary to general opinion, experience convinces one that these problems do not diminish when a small building in a small community is the matter involved. Available funds are so limited that economy must be practiced frequently with Scottish thrift to erect any structure worthy of the name of a public library.

It is to be regretted that there is not available for the building committee a complete up-to-date manual. Mr. William R. Eastman's pamphlet, *The Library Building*, published in 1918, Miss Cornelia Marvin's pamphlet, *Small Library Buildings*, published in 1908, with an excellent introduction filled with sound advice and suggestion, and Miss Alice G. Chandler's pamphlet dated 1915, *The Country Library versus the Donor and the Architect*, are helpful and suggestive. "The small-town library building" an article in *House Beautiful*, January 1920, discusses remodeling dwelling houses for small library buildings.

An unfailing source of help is, however, to be found in the State Library Commission. The committee's first step should be to seek its counsel. Most library commissions have at command a collection of blueprints of floor plans of library buildings. They can recommend reputable architects who have designed successful libraries. Indeed two commissions are so fortunate as to receive the services of eminent architects practically as consulting architects. They render invaluable aid to committees who bring their building problems to the commission. If no state library com-

mission is available, send your problems to the Secretary of the American Library Association in Chicago, who will be able to focus the results of the experience of the country on your needs.

The librarian, furthermore, if trained and experienced, is of inestimable value to the committee. Such a librarian understands administrative detail and appreciates modern library ideals and standards of work and frequently knows something of the latest development of library architecture, furniture and equipment. Frequently library trustees, undertaking a new building, begin their activities by engaging such a librarian in order to advantage by her assistance in planning and administering the building.

Because of the perplexing problems and difficulties to which committees undertaking an important task for the first time always fall heir, it seems not unfitting to set down a few simple hints which have proven practical to men and women who have struggled over the same problems.

The personnel of the committee is usually pre-determined before the committee meets for the first time. It may be a small group of the entire board of library trustees constituted by it to act for the Board. Its members may have been named by the donor of the building. The Town officials may have called together several prominent citizens and among them a representative of the library trustees and designated them a building committee, answerable and responsible to the town itself. The spirit in which the committee acts, on the other hand, is not dependent on outside forces. Unity of action as a committee is essential, which demands frequently subordination of one's own personal interest or desire to the common good. The committee is under obligation to the community and must discharge its responsibilities in that spirit.

Committees in a small community are exposed to more personal demands than their city brothers, for people in towns live closer together in community and personal affairs than city dwellers. A "one man" committee is doomed never to obtain complete success. Such a committee is deprived of originality, self expression, initiative, broad and concerted action and frequently of intelligent understanding of the problem as a whole.

Organization is absolutely essential to the effectiveness of a library building committee. No matter how small an amount of money is involved, this holds true. The committee, as a unit,

not as individuals, is responsible and accountable for the money received and for the results achieved to the body which gave it a warrant to act. Be sure to have in writing this authority, whether it be delegated to the committee by the library trustees or by the civic officials. And make certain, further, that this authority does not bind members separately and individually to execute any contract or meet any deficiency in the event of failure of the contractor or others. In those cases in which the board of library trustees delegates a committee from its own membership to serve it is not an unwise step to have this appointment approved by the proper civic authorities. This, to a certain extent makes these authorities responsible for the acts of the committee.

Even for the smallest undertaking, experience shows the necessity for the election of a chairman, a secretary and a treasurer, with a complete definition of the duties and powers of each. If this matter is attended to at the very outset difficulty may be avoided later. In addition to calling and presiding at meetings, the chairman should sign all slips authorizing expenditure of money, and should approve all vouchers submitted. The treasurer fulfills the functions usually assigned to this office, but it is especially important in this instance for him to keep a complete and accurate record of moneys received and paid out, together with his acknowledgment of receipts and of his authority for expenditure. If ever a complete record of all correspondence of a committee were worth while keeping, it is so in this case. The secretary should keep and file a carbon copy of every letter sent and file letters received. A complete and accurate account of the meetings should be written and it is especially important to record every action taken. These minutes will be referred to constantly and become a source of information and advice as well as a record and a protection to the committee in cases of need. I have seen many a minute book of committees which recorded little aside from the fact that the committee met at Matilda Jenkins's house, that the minutes of the previous meeting were read, that the chairman presented an important letter which was discussed, and that the meeting adjourned at five o'clock. Better dispense with all minutes than keep such valueless things. Record exact nature of important matters presented and action taken on each. A record of the attendance at meetings often settles without doubt discussion as to whether a

certain doubting member ever heard of or voted for a measure. A serious handicap to library building committees in small places is lack of this very organization. The informality with which the members very often have been in the habit of conducting their private and semi-public transactions frequently makes it impossible for them not to conduct the business before them in the same unbusiness-like manner. I know of one case in which a member of a committee was a friend of a real estate agent who pressed the purchase of an undesirable lot. The committee man pledged the committee to take it without even presenting the matter. All too often misunderstandings, hard feelings and expenditure of money have resulted from individual action without authority from the committee. Acquaintances talk with this committee man and with that and secure promises absolutely without sanction of the others. One committee got into expensive difficulty because two members told almost every contractor in the neighborhood and one or two architects to go ahead with some plans which the committee could consider. Several of these plans had to be paid for, altho none of them had been authorized by the committee.

In the course of events the building committee becomes more or less responsible for: choice of site, size and character of library, choice of architect, acceptance of the plans and specifications, including furniture and equipment, award of contract, making of payments to the architect, contractor, insurance agent and others, agreement with the municipality for the use and upkeep of the building.

Much of the use and character of service rendered by the library will depend upon the choice of the location. All too frequently this choice has not been left to a committee but has been predetermined by a gift of a site more or less desirable when carefully considered. Outstanding factors which determine the selection of a location for a library are: accessibility, surroundings and future growth of the town or city, quiet, street "improvements," light, slope, grading and planting, and the general texture of the soil.

The library building should be accessible to the majority of the community. A building which housed a well selected and generous collection of books was erected between two villages four miles apart in the hope that it would serve both. The towns dwindled rather than grew together as had been expected and

the library is isolated and all but abandoned. The surrounding neighborhood should be desirable and give promise of remaining so for some years to come. The railway station yard is not the most feasible spot for the location of a library, altho it does fill the desire of those who wish all passers-by to see it.

Street "improvements," sidewalks, curbs, sewer, water, gas and electricity constitute important considerations when the cost of the lot is being figured. Naturally if the committee is required to make these necessary improvements it will find a considerable additional outlay to the erection of the building itself. If the improvements are all in, be sure that all assessments against the improvements have been paid by applying to the proper town or village official. I recall one case in which the construction had been started and was halted by an injunction put upon the committee because it had not paid an assessment on a sewer which had been laid nearly thirty years previous. Altho the library building and property were to be exempt from taxation it was held that the sewer assessment must be paid. You may not have to consider gas, sewer and water pipes in your particular community and very likely there are no assessments for curbs or sidewalks. You will in all probability need to provide, however, improvements such as septic sewage system, water supply, and lighting plant. Water must be installed even in the smallest building. It is necessary to the decent performance of the routine work of the staff.

Light is a factor most essential to the success of the building. The lot should therefore be wide enough to permit ample space for windows in the side walls. Corner lots will, of course, give an abundance of wall space. But corner lots bring special problems while they offer special advantages.

A slope in the ground to the rear or at one side is frequently of advantage to the building plan, as it allows space for a light, airy basement. A slope to the front of the lot does not give the same advantage and presents difficulties with terraces, steps or other problems. Texture of the soil plays a part. If you have to blast out a ledge or if a clay bog has to be filled up the expense is increased.

Do not overlook the item of grading. Consider a high, dry lot before a low, damp one. Avoid a site which is so low as to require expensive filling and grading. Dirt hauled to the site may prove costly and increase appreciably the expenditure for

the site. If there are trees on the lot consider very carefully the placing of the building before removing them. Trees enhance the beauty of property, public as well as private. In contemplating the cost of the site do not forget to estimate how much may have to be spent in planting shrubs and trees to make an otherwise barren lot attractive.

The factors which determine the size and character as well as the ultimate cost of the building are the town, the number of volumes in the library, the readers to be accommodated and the annual appropriation for maintenance. The character of the population and the possible growth of the neighborhood will determine to a large extent the character of the building.

In estimating the provision for the housing of books it is necessary to consider the growth of the library for twenty years, taking into consideration the possible discarding owing to wear and tear.

A great deal of attention must be given to the question of how many readers are to be accommodated and in what manner. Some communities are so placed geographically that reading rooms are not an essential feature. Others have essentially an "at home" habit to such a degree that patrons do not loiter in the library to read but take the books directly to their homes. It must be determined at the outset whether study rooms and an auditorium and possibly a room for the children's story hour must be provided.

When it comes to a matter of the upkeep of the building a great deal of care must be exercised not to erect a building which cannot be supported properly by the municipality. The annual appropriation for maintenance will in all probability have to be about 15 per cent of the cost of the building. The Carnegie Corporation has always required a pledge of at least 10 per cent of the cost of the building, but this has been found not to be adequate.

The state library commission will be of utmost help to the committee in pointing out the essentials of an up-to-date library building adequate to meet the needs of the community. Furthermore, it will suggest buildings which the committee may visit to study features desirable in a new building, as well as to note objectionable flaws in plan and construction to be avoided.

When the site has been chosen and the size and character of the building have been determined the committee is ready to

make a selection of its architect. And there must be an architect, be the building small and the problem apparently simple. Do not try to make-shift with the plans of the local carpenter and contractor, giving yourself the unsound excuse that you are saving architect's fees. I have so often seen the agonies of committees which have tried to get on without an architect, and have so repeatedly been asked how the building they had erected with such dissatisfaction might be saved from its wretchedness that I urge unhesitatingly an architect. For your construction, the execution of the plans, choose a good contractor, the best you can find. Contractors, even if they have been building for their boasted "thirty years," and are proven wise in construction frequently are not designers. They have not had the right kind of training to fit them for designers. They claim to be more practical than architects whom they scorn as "artists."

On the other hand, architects, especially trained, usually produce not only more beautiful buildings, but also buildings actually more practical. Builder's plans may call for buildings sturdy and strong, but often they show a waste of space. The contractor, who is not an architect, tries to get architectural effects by tacking things on, features expensive and unnecessary, whereas an experienced designer produces his architectural effects by the skillful arrangement of walls, windows and roof, making needless the application of unnecessary ornamental features. One fact, however, is to be remembered about all architects. To be entirely satisfactory plans devised by skilled architects should be subjected to criticism and revision by skilled librarians. Some of the best architects are often ignorant of library axioms and usage, and a final revision of plans by trained and experienced librarians will often avoid what might otherwise prove to be a library which was ill adapted to library purposes, expensive to administer and to maintain.

An architect can save the committee a good percentage on the cost of his work. This has been proved over and over again. The average committee man knows little or nothing of the value of materials, or labor, of how to let a contract to advantage, or how to carry on the superintendence of the work in order to save both time and money. The architect does this. Moreover, the value he will give you cannot be reckoned in dollars and cents. He will achieve for you a building which you and your contractors together never could have built, work as you may.

Tho it may appear strange to some, small library designing is most difficult. Every inch of space must be utilized. Every architectural feature must be obtained at lowest cost. It requires brains and skill. It is for these that the committee pays its architect fees. You should not be surprised if the architect asks you to pay 10 per cent of the total cost of the building for his architectural services. The American Institute of Architects now recommends this as a just and proper fee for its members to charge for plans, specifications, and supervision of a building costing less than \$10,000. As a matter of fact, architects do not charge the same fees, and the price varies from 5 to 10 per cent. Architects usually charge from 2½ to 7 per cent for plans and specifications when they do not supervise construction in addition.

It is not advisable to choose an architect by competition, except for buildings costing over \$50,000. For such competitions, the American Institute of Architects has laid down clearly defined rules of procedure, and these should be consulted and followed. Confer with the state library commission. Study the work actually done by recommended architects, select one who has been successful from the library point of view and who has business stability and equipment enough to execute his plans, and stay by him, working over plans, changing and developing them with him until the most satisfactory plan is evolved. Avoid, as you would the plague, him who brings you a pretty water color drawing without specifications or floor plans and tells you his building can be built for a certain figure. Avoid him who shows you plans of buildings he has designed but which have never been erected. Avoid him who is not recognized as a member of his craft by the American Institute of Architects. Many an unscrupulous schemer has secured a commission on a perfectly impossible drawing or by big promises. Investigate. You will find that some of the small libraries in the country have been designed by some of the most eminent American architects, men who have been willing for the sake of their great profession to bring their wealth of training and experience to the problem with the same enthusiasm and evident pleasure with which they have done their largest work.

It is most essential that the architect shall work out complete plans and specifications, not only for the construction but also for the furniture and equipment. Committees have started to build without complete plans and specifications, trusting to

luck and the architect, and have had to cease operations until more money was available.

After you have given to the architect all the ideas which the committee would like to see worked into the building, he will in all probability prepare a set of "sketches." Sketches are drawings on white paper of the floor plans and one or two exterior views embodying the combined ideas of the committee and the architect. Frequently sketches result from rough drawings made by the committee itself.

After the architect submits his sketches the committee should examine them thoroly, criticize them in detail, feature by feature. Perhaps the layout and the design do not prove entirely satisfactory the first time. The committee should then confer with the architect and have the sketches drawn and re-drawn until the entire plan and the design are satisfactory. It is essential to give time and thot to the sketches in order to avoid the necessity of changes later when the plans have become more or less fixed.

When the sketches are satisfactory the committee should approve them formally, and give authorization to the architect to proceed with working drawings and specifications.

"Working drawings" are usually made in black ink on "tracing cloth," a sort of waxed, transparent linen. After working drawings are completed the committee looks them over again carefully before the several sets of blue prints are struck off. Working drawings are duplicates of the approved preliminary sketches, except that they are drawn more in detail, all dimensions being plainly marked and many notes added for instructing workmen. An ordinary set of working drawings includes: a basement plan, a first floor plan and the layout of other floors if there are any, an exterior view of each of the sides of the building, and possibly a cross section showing interior details. Frequently one or more sheets of details are included, showing windows and door frames, cornices, pilasters, and similar features. These sheets endeavor to show a drawing covering every portion of the building which the contractor must know about before he can intelligently estimate the cost. Later, after contracts are let, more details of construction and finish are usually added by the architect for the assistance of the workmen in building.

"Specifications" is merely a detailed set of directions and instructions to the contractor, explaining to him just what kind of building the committee and architect have in mind, and explaining to him just how the building is to be erected. Specifications tell all about the masonry of the building, the carpenter work, the plumbing and heating, painting and glazing, plastering, lighting, furniture, and all other details. The specifications, together with the plans, are supposed to cover the entire building so that the contractor can, in the first place, tell in advance precisely what it will cost, and afterwards accurately build it as indicated in the plans and specifications. Study the plans and specifications carefully before any construction is undertaken. In every good set of plans and specifications every item in the building is so clearly indicated that the committee can know just what the result is going to be. Incidentally, the cost of the building can be kept down when plans and specifications are complete and accurate, because a contractor can work out his estimates much more closely.

When the plans, working drawings and specifications have been completed, the committee once again approves them and files a copy for future record. The committee then authorizes the architect to advertise for bids and to receive them. The architect may select a number of contractors to whom he furnishes blue prints of the working drawings and a set of the specifications. Each contractor figures on the blue prints and returns them with his bid. On the day and at the hour set the bids are opened and usually the contract awarded to the lowest bidder.

It is a good plan to have all the contractors present, if possible, when the bids are opened, and to read the bid aloud in their hearing. This will save the committee any criticism of secrecy and of unfairness.

Sometimes the contract is not given to the lowest bidder. One contractor may be a little higher and he may be known by reputation to be a more desirable contractor than he who submitted the lowest bid, and in that case the committee may decide to employ the higher bidder. This seems to be fair provided the specifications contain a clause to the effect that "the committee reserves the right to reject any or all bids."

When the contract is awarded, the contractor as well as the architect and the chairman of the committee sign their names on a copy of the working plans and on a copy of the

specifications. By virtue of these signatures a contract is legally operative. These pages become valuable documents and should be carefully preserved. This contract is the contractor's promise to do certain work for which the committee agree to pay a specified price. Contracts are usually printed forms, with blank spaces for filling in with typewriting. If you have an architect he will attend to the preparation of such papers. Committees which get on without an architect usually have a lawyer draw up the contract. The American Institute of Architects has determined on a standard form of agreement or contract and other useful forms. You can purchase these and fill in your own specific needs, if necessary.

Briefly, the contract states that the contractor agrees to perform certain labor and furnish certain materials for the library building to be erected, according to the plan and specifications furnished by the architect, and under his supervision. The committee agrees to pay certain sums for said work, provided all labor and material are as set forth in the plans and specifications. The time when payments are due is stated, and further items concerning insurance, progress of the work, quality of workmanship and other similar details.

Look out for extras. It is a good plan to have written into the contract somewhere "no extras honored by the committee unless ordered in writing and signed by the architect." It is easy for a committee man to say to a contractor as the building proceeds: "Make this window larger," "Take out this door and turn the stairs around." The contractor follows instructions and submits his bill for an "extra" when the contract is finished. The ideal way is to have no extras. Get everything into the plans before the building begins. Examine the plans and specifications and make sure that they are just what is wanted. Once the contract is given, make no changes. If changes must be made, however, make as few as possible and consider the importance of each before it is done. Above all things have any changes ordered taken care of by typewritten letters with the amount of cost entered beyond all dispute. Keep a note book and in it put down the contract price, and then enter every written order for a change or an extra as fast as it is issued, together with the cost if it is known, and the date. Architects usually keep such records, and the committee's building account should check up with the architect's.

These, then, are suggestions which every library building committee ought to consider. Perfect the organization of the committee, determine the needs of the town as far as a library building is concerned, visit and study recently erected buildings which would meet those needs, choose an architect who has a good reputation for library work done, study and work over the plans and specifications until complete, accurate and entirely satisfactory, let the contract to a reputable builder taking into consideration local talent available, and follow up all construction to be sure that it is done in accordance with the plans and specifications. And above all keep in touch with the state library commission, first, last and always. It can help you with the choice of the architect and with the library needs, with plans. For your own ultimate comfort and satisfaction submit all plans and specifications to the commission before any construction is undertaken.

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THE JONES LIBRARY AT AMHERST

Public librarians who have perhaps felt apologetic because their building had been made over from a dwelling house, need feel so no longer, because the trustees of the Jones Library, with plenty of money to design such a building as they wished, have produced a colonial house.

The following editorial from *The Library Journal* shows how beautifully and effectively they have provided for a wide range of service to the community.

Opened and dedicated on November first, with fine weather prevailing and hosts of librarians and friends attending the exercises, with stimulating addresses by Dr. John M. Tyler, president of the Board of Trustees, Charles F. D. Belden, director of the Boston Public Library, and Dr. C. C. Williamson, director of libraries at Columbia University, the new Jones Library at Amherst is now an established fact.

The new building is a three-story gambrel-roof house, facing south, with two-story extensions on the east and west. The main feature of the first floor is the large reading room to the left of the hallway and extending from the front to the rear of the building. This room is well lighted by windows on the north and south, has a fireplace, shelving for about two thousand volumes, and accommodations for thirty readers. An alcove adjoining the reading room contains three ranges of bookshelves holding about six thousand books. A nearby room provides accommodations for magazine and newspaper readers. There are four rooms constituting the administrative quarters to the right of the main entrance; one for the cataloging department, one for the Boltwood Historic and Genealogical Collection, and two for the librarian and assistant. Two large rooms dominate the second floor; one for the exhibition of paintings and other art material in the William A. Burnett Memorial Art Collection, and the other the Samuel Minot Jones

Memorial Room. Two smaller rooms on this floor are available as committee meeting rooms and for special collections. In the Amherst collection are kept the works of men and women associated with the town, from Emily Dickinson, Helen Hunt Jackson, Eugene Field and Noah Webster to Ray Stannard Baker, Walter Dyer, Mme. Bianchi and Walter Stearns Davis. Amherst imprints and Amherst historical material are also housed here. The third floor has one large room available for evening study classes and other group meetings and five smaller study or book rooms.

The two-story extension on the west is devoted to boys and girls and their varying interests. The reading room on the ground floor has a large fireplace, several windows on the south and west, and an alcove extending along the north. Two rooms over this reading room will be available for story-telling hours, the exhibition of special collections, meetings of parents and teachers, and the shelving of books and magazines likely to be of special interest to groups of this sort. A good basement room under this extension provides space for school collections and book storage.

The extension on the east provides an attractive auditorium with a stage and all modern equipment, two dressing rooms, and seating accommodations for about two hundred and ninety persons. A small reception room or lobby and vestibule with coat-checking room adds to the usefulness of this part of the building. Just above this vestibule there is an attractive room available for special book collections, and extending over the fireplace in the rear of the auditorium is a balcony with a moving picture and projection machine booth still higher up.

The boiler room, coal pocket, janitor's room, and men's toilet are in the basement under the auditorium. Room is also provided here for the safe storage and exhibition of the old stage coach owned by the Amherst Historical Society. It will be possible to provide storage for about thirty thousand volumes immediately under the main reading room, and it is estimated that in the library will be housed about eighty thousand volumes.

The principal construction material is Pelham field stone, steel, and concrete, with brick extensions in a few places. The stones were derived from three or four hundred yards of stone wall which were bought in Pelham and broken up into irregular shapes and sizes, giving interest and variety as well as diversified

color to the stonework. Amherst people brought stones to be worked into the building. Dr. Grenfell's home on Lake Champlain, Mount Washington, and Mount Pleasant all contributed, and for the walks about the grounds slabs were quarried from a hillside in Goshen. The large area in the rear of the building extending from Pleasant Street clear thru the grounds of the Amherst Historical Society will be planted and landscaped so as to make a very attractive part of the library property.

The building was designed by Allen H. Cox of the firm of Putnam and Cox of Boston, the designer of the Lord Jeffrey Inn and nine fraternity houses in Amherst. Started in July 1927, it was built by the Caspar Ranger Construction Company of Holyoke, with the laying of the cornerstone taking place on October 18, 1927. The three rooms devoted to the use of the boys and girls are finished in white pine; the main hall upstairs and down is finished in Philippine walnut, while the rest of the house is in Philippine mahogany. The architect and the librarian (Charles R. Green) have constantly had in mind the idea of making the building a friendly building—one which would invite people to come in and get what they could of truth and beauty from its books and pictures and generally attractive atmosphere, writes Mr. Green. "The book home for all the people" has been their ideal.

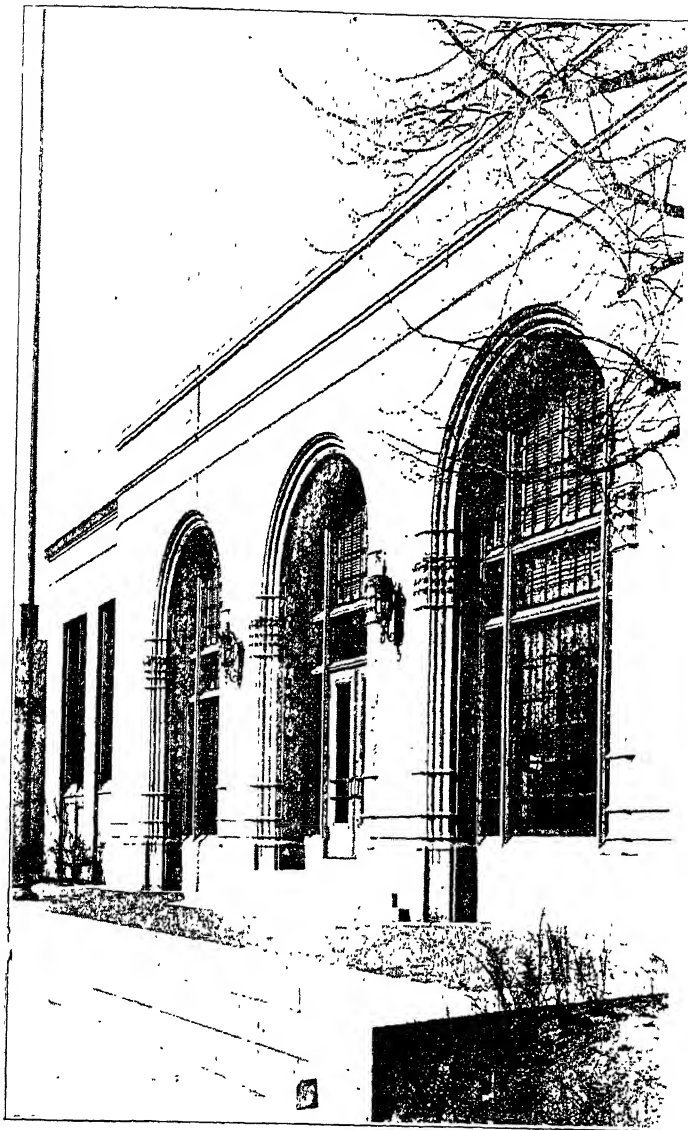
It is an ideal which would have met with the full approval of the founder. As the *Springfield Union and Republican* puts it, "When Samuel Minot Jones made provisions to bequeath almost three-quarters of a million dollars to Amherst for a library, he indicated that he wanted not a stiff, institutional affair sacrificing the pleasure and happiness of readers to cut-and-dried library methods. One look is enough to show how this spirit has been understood by the trustee, the architect and the librarian. The new building on Amity street . . . has no look of a prison where books are caged up and held incommunicado for life. Its rambling contour, varied materials (Pelham field stone, painted brick and wood, as well as slate roofs), charming masses, have the appearance of a large, perhaps even overgrown home, which has grown as the family it sheltered grew. Wings, alcoves, extensions, proceed from the central mass spontaneously, but the whole edifice has a sense of unity which shows how successfully the architect has expressed the feeling of the region." "Built to fit into its environment" (the

Union and Republican continues editorially), "the library is so furnished and ordered as to fulfil community traditions and afford a ready means of knowledge concerning the character and antecedents that give bent and strength to the community life. At the same time in a much more subtle, pervasive way the library, by its fittings and atmosphere, will be effectual in promoting the civilizing influences devotedly cherished by Amherst exponents of the past and present. . . The opening of this unusual library building is a notable step in promoting the destiny of Amherst as a representative New England town of the better class. It should be instrumental in developing a greater degree of harmony between town and gown, a problem that is ever present in a college town. And it is safe to predict that, so long as the library remains under present auspices, no interest will be permitted to take precedence to that of the general public welfare, to the promotion of which its librarian and trustees have so ably addressed their endeavors from the beginning of this development."

BRANCH LIBRARIES

The Boston Public Library was the pioneer in establishing branch libraries in 1870. Its first building was for the Roxbury Branch two years later, and is briefly described in the Annual report of the library as having a "library room" extending thru two floors, a waiting room for adults, and one for youths on the second floor. Mr. Winsor later spoke of the library or book room as having "three storeys of eight feet each in height, as planned for the future will hold 100,000 volumes with none over forty feet from point of delivery."

Much stimulus was given to the building of branches by Mr. Carnegie's gifts, the conditions of which frequently specified that they were to be spent wholly or partially in this way.



CARPENTER BRANCH, ST. LOUIS PUBLIC LIBRARY

BRUCE LIBRARY

The first branch buildings were built before the days of open shelves as this account of the George Bruce Branch of the New York Free Circulating Library illustrates. This branch on West Forty-second Street was later changed in interior arrangement to the free access system, and in 1912 it was sold, demolished, and the proceeds used to erect another "Bruce Branch" on West 126th Street.

This description of the original Bruce Branch appeared in *The Library Journal*.

The new Bruce Free Library, at No. 226 West Forty-second Street, New York City, was open for inspection yesterday, and today from 9 A.M. to 9 P.M. The people who wish to avail themselves of its privileges will be welcome to see what they can find to please them among its treasures. On Sundays the hours will be from 4 to 9 P.M. This is a branch of the New York Free Circulating Library at No. 49 Bond Street, and at No. 135 Second Avenue, and it is the gift of Miss Catherine Wolfe Bruce. Miss Bruce gave \$50,000 for the purchase of the land and the erection of the building as a memorial to her father, George Bruce, and to this she added \$10,000 as a fund for providing books. The structure is of light red brick and stone trimmings, and tho not large its subdued colors and artistic architecture make it an attractive object among the other buildings in the neighborhood. A little space is left between it and the next building to the east, so that the library has windows on three sides.

The lower story is the library proper, in one large room, with the bookcases in the middle. In front of them is a rail and a brass screen protecting them from the fierce ardor of the eager seeker for knowledge, and from behind this the attendants are able to administer culture in safe and moderate doses. Beyond the bookcases is a space fitted with tables for

the work of the library. On the second floor is the reading room, which is as conveniently arranged for its peculiar purposes as the library. The whole building is handsomely finished in ash. The library now contains from 7000 to 8000 volumes in English; 3000 German books, which Miss Ellen M. Coe bought in Europe last summer, will soon be added. Miss Coe, as librarian of the New York Free Circulating Library, has general charge of the new branch, but it is under the more direct control of Miss Theresa Hitchler and her assistants. The architect, G. E. Harney, has not only done his work in a thoro and artistic manner, but has done it entirely without charge.

The inspection yesterday lasted from 4 to 6 o'clock. There were a good many people present and all were thoroly pleased with what they saw. Some one said that the library ought to have a portrait of George Bruce, and then the secret was too good to keep any longer that a lady whose name could not be mentioned was to give a replica to be painted by Daniel Huntington of his portrait of Mr. Bruce. All interested in library progress should visit the Bruce Library.

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LAWRENCEVILLE BRANCH OF THE CARNEGIE LIBRARY OF PITTSBURGH

The branch library described below presents several qualifications for inclusion. It was the first Carnegie branch built. Its design illustrates the radial stack which Mr. E. H. Anderson who was then librarian is given the credit for originating and which became so popular for small libraries after the Columbian Exposition. Its arrangement permits open shelf privileges and extensive branch activities.

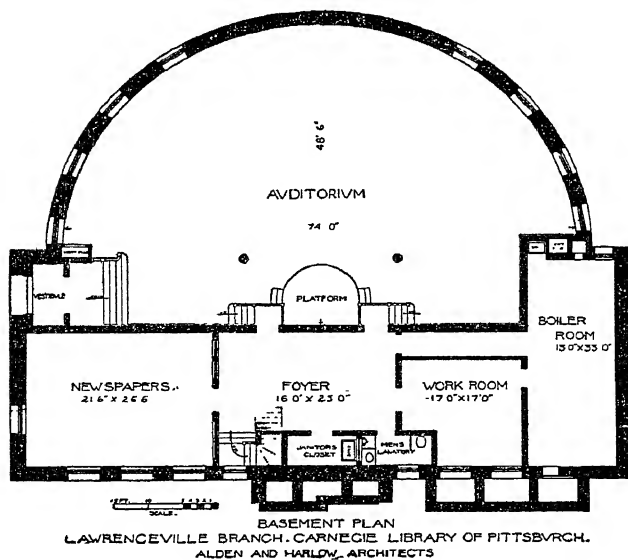
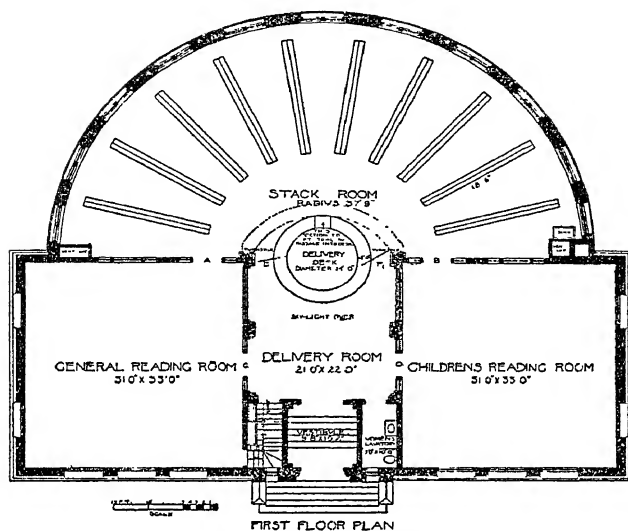
Edwin Hatfield Anderson was born in Zionsville, Indiana, in 1861, was graduated from Wabash College in 1883, and spent a year at the New York State Library School. He entered library work as Cataloger in the Newberry Library, Chicago; was Librarian of the Carnegie Library, Braddock, Pa., from 1892-95; Librarian, 1895-1904, Carnegie Library, Pittsburgh; Director, New York State Library and Library School, 1906-08; Assistant Director, June 1908-May, 1913, and since the latter date Director, New York Public Library.

As is well known, Mr. Andrew Carnegie gave \$1,100,000 to the city of Pittsburgh for a free public library, with branches. The main building (including an art gallery, a museum, and a music hall) was erected at a cost of about \$800,000, and opened to the public in November, 1895. The remaining \$300,000 was to be used to purchase ground and erect buildings for branch libraries. Since the city is cut up into separate districts by high hills and the Monongahela River, the board of trustees decided that seven branches would be required to satisfy the needs of the people. Sites have been chosen and the ground secured for six of these; the plans for one, the Lawrenceville branch, have been prepared and approved, and the building is now in process of erection.

In the preparation of these plans, which are here reproduced, the problem was not only to provide for a stack room with a capacity of 20,000 volumes, a delivery desk, a general reading room, and a children's room on one floor, and on a lot 90 feet front by 80 feet deep; it was further required that every part of this floor should be visible from the delivery desk, in case it should be decided to give the public free access to the shelves. It should be stated, also, that not the whole of this 90 by 80 feet was available for building, because the lot was situated on the side of a hill with the high ground in the rear. So it was necessary to sacrifice some floor space in order to secure sufficient light.

The plans will show how the requirements have been met. The general reading room and the children's room are on either side of the lobby reached by the main entrance. The circular delivery desk is in the midst of things. Back of it is a semi-circular stack room, with the center of the semicircle coinciding with the center of the delivery desk. The 10 book-stacks are radii of this semicircle; and the partitions separating the general reading room and children's room from the delivery room (or lobby) and the stack room are glass. From the delivery desk, therefore, the assistants in charge will command a view of the entire floor. This is the distinctive feature of these plans. Heretofore, where the public has had free access to the shelves, it has been necessary either to dispense with this complete supervision and arrange the stacks in the ordinary way, or secure such supervision by shelving only the walls of the room, thus sacrificing shelf capacity. In the Lawrenceville branch plans every person on the first floor can be seen from the central desk without any special effort on the part of the assistants.

If the branch is operated on the free access plan, the doors C and D, on either side of the delivery room (which would be merely a lobby in this case), will be closed, and entrance to the stack room will be thru the turnstile F, which works in only one direction, and thence to the reading rooms thru doors A and B. The exit from all parts is thru the turnstile E, which also works in only one direction. By making it necessary for every one to pass out by the delivery desk thru this turnstile, the temptation to carry a book away without having it charged is reduced to a minimum, especially since no one can feel sure that he has



escaped observation at any time during his visit. Either of the turnstiles would register automatically the total attendance. If, as is probable, the open-shelf system is adopted, what is called a children's reading-room in the plans will become a children's *department*, with all the juvenile books on shelves around the walls.

If it should be decided to abandon the open-shelf system it would only be necessary to open the doors C and D, close the doors A and B, and substitute for the circular desk and turnstiles a desk of the form indicated by the dotted lines back of the circular desk in the first-floor plans.

The 10 stacks in the stack room alone will have a capacity of about 25,000 volumes, which may be doubled by superimposing 10 more stacks of the same size and connecting them with balconies. The capacity of the wall shelving in the children's room will be about 4000 volumes, with a like capacity in the general reading room, very little of which will ever be needed. The total shelf capacity of the first floor, therefore, will be about 33,000 volumes, which may be increased to 58,000 by adding another story to the stacks.

The basement will contain a newspaper room, if one should be needed, a work room for unpacking, repairing, etc., a boiler room, and an auditorium for university extension and other popular educational lectures.

Since the Lawrenceville branch is merely the first of seven branches which will complete the Pittsburgh system, and since the plans for some of the others are now being prepared, the trustees would be glad to have the benefit of criticisms and suggestions from librarians and others with reference to the plans printed and described herewith. Such criticisms and suggestions will be gratefully acknowledged, if addressed to E. H. Anderson, Librarian, Carnegie Library, Pittsburgh, Pa.

YORKVILLE BRANCH BUILDING OF THE NEW YORK PUBLIC LIBRARY

In contrast with the Bruce Branch built in 1888, is the Yorkville Branch erected in 1902. This was the first Carnegie Branch in New York City, and strikingly illustrates the changed conception of the purposes to which a branch should be put. The following description by Dr. Arthur E. Bostwick is from *The Library Journal*. (Vol. 27, p. 270)

A sketch of Dr. Bostwick is in Volume IV of this series, *The Library and Its Organization*.

This building, the first to be erected in Greater New York with Mr. Carnegie's great gift of \$5,200,000, will stand on the south side of East 79th street, between Second and Third avenues. It will be the home of the Yorkville Branch, which since June 10, 1897, has occupied the diagonally opposite corner—the northwest corner of Second avenue and 79th street.

The branch is circulating books, sometimes at the rate of 1000 a day, in most inadequate quarters—a single floor having about 2000 square feet of area. The new building will have on its five floors, including basement and janitor's floor, 14,680 square feet—more than seven times what the branch is getting along with at present. It is not anticipated that this will be a square foot more than is needed.

It must not be supposed that the new building is regarded by those who have planned it as ideal for its purposes. A library in a crowded city street must make the best of adverse conditions. To make use of the type that is coming to be preferred for the small library—the type somewhat picturesquely named “the butterfly” by Mr. Eastman, in allusion to its central body flanked by its equal wings—a considerable plot of ground is necessary, not less than 100 feet front. This the price of land makes prohibitive over a large part of Manhattan Island. The typical branch building in the crowded parts of the city will have to stand on two city lots—say from 40 to 50 feet front—and its departments, instead of being spread out as much as possible on

one floor, must be piled one above the other. In other words, we must not look to the butterfly for our model, but to the caterpillar—the caterpillar standing erect on its tail.

Experience in branch work in New York City indicates that the necessary departments in a New York branch are the general open-shelf room for adults, with circulating desk and some reading tables; the children's department; and the newspaper and periodical reading room. The best place for each of these is obviously the ground floor. Equally obvious, however, is the fact that in a building such as we have indicated only one of them can be so located, and that the other two must struggle even for second place. There are arguments in favor of every possible arrangement; it is not even likely that the same will be adopted in all of the future Carnegie buildings. In the one under consideration the adults have been placed on the ground floor, the children on the second floor, and the readers on the third, under the large skylight. In the basement are the heating apparatus (direct-indirect hot-water system), the receiving and packing room and space for storage. The janitor's apartment is placed in a half-story, above the third, situated in the rear and opening out on the roof. It is invisible from the street. The small collection of reference books is placed in the rear of the ground floor, separated from the general adult department only by a railing. The children's department will have a study room, but unless there is absolute necessity this will not be wholly partitioned off. On the third floor the staff room has been placed and there will be space here not only for the general reading room but for such other departments as future experience may suggest. The light here is chiefly from above (the small front windows serving only for ventilation) and the walls will be suitable for exhibitions of pictures, etc. The whole building will be lighted by electricity and there will be two small elevators—one for books, which will be operated by electricity, and the other a hand dumb-waiter for janitor's supplies.

The architectural features of the building are not due to a single hand. The general or typical arrangement of the front was fixed upon, after several conferences, by a commission of New York architectural firms appointed by the library trustees. These firms, Messrs. Carrere and Hastings; McKim, Mead and White; and Babb, Cook and Willard, decided on the general type of building, and to this type the plans of the Yorkville

branch, which were prepared by Mr. James Brown Lord, conform. To this type also, future plans must conform, except where the conditions are rural rather than urban. This does not mean that the buildings will all look alike, for plenty of room for individual taste has been left. It means, in the words of one of the architects, that the Carnegie buildings "will all tell the same story, but will tell it in different words." The three arches on the ground floor, for instance, which are one feature of the type, may be treated in a great variety of ways. In the case of the Yorkville building the entrance has been placed in one of the side arches, opposite the stairway—an arrangement which, altho a departure from symmetry, is not only more convenient but, according to some authorities, is more sound from an architectural standpoint, as it indicates from the exterior the structural arrangement of the inside.

Summing up such of the distinctive features of the building as are dependent on its position in a closely built-up block in a crowded portion of a city, it may be described as a branch library in which the different departments are located one above the other, on different floors, each floor being kept, as far as possible, free from partitions, and in which stress is laid on the circulation of books on the open-shelf system, the principal use of the building itself for reading purposes being in connection with children's work and with the general use of current periodicals and newspapers.

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BROOKLYN BRANCH LIBRARY BUILDINGS

To design branch buildings in numbers without following one set style was the problem presented to several large cities by Carnegie gifts for branches. Mr. Soule explains the way in which the Brooklyn Public Library solved that problem.

Volume III of this series, *The Library and Society*, includes a sketch of Mr. Soule.

Great progress has been made during the last decade in library architecture. When the paper embodying the "Points of agreement among librarians" on this subject was read at the 1891 American Library Association conference it was said that "very few library buildings erected in this country during the last ten years conform to all, and some of them conform to none, of these axiomatic requirements." It may confidently be said now that very many of the recently erected library buildings conform to all, and all of them conform to most, of the requirements named in that paper. With the building of new libraries all over the country, librarians are becoming more and more expert in planning; and with their advice and aid architects are every year improving the working interiors of the newer library buildings, bettering old conditions and solving practically new problems as they arise.

The latest problem challenging the ingenuity of librarians and architects is the construction of branch library buildings in large cities. A branch library is no new form of library work, but up to the last year branches were established and their problems worked out, at intervals, one at a time. But now Mr. Carnegie's benefactions, and the public enterprise to which they give an added stimulus, are requiring branch libraries in batches, and engaging the best thought and the best work of all agents concerned in library building and administration.

Among the branch library building plans which interest librarians, whether their libraries have branches or not, are those of the Brooklyn Public Library. They are interesting both on

account of their conditions, which resemble those of town or small city libraries, and on account of their excellent methods of inception and development.

As to conditions, they have the usual requirements of book storage, handling and distribution, reading on the premises and children's reading, together with such social club features as exhibitions, school work, and popular lectures. There is only one problem of the town or city library which is not exemplified in these branches, namely, the problem of providing for future increase in book storage and handling. Each branch is so situated, in a defined and limited district, and is so served for exceptional and growing use by having the main library to draw from, that the contents of the book room may be considered as settled for the life of the building. With no additional shelf room to be provided for, the book room problem can be worked out from the outset as a finality. One result of this condition is the possibility of adopting the semi-circular room with radiating book-cases, which must be excluded from other library plans because of the difficulty of enlargement, but can be adopted in branches in full compliance with the requirements of light, space for users of books, and complete supervision.

In New York City the branch libraries must be located in the center of closely built blocks, with the problem of how to get satisfactory arrangement and service between two blind walls, with light and entrance only possible at front and rear. But in Brooklyn the branches are so located as to have space and light on all sides, thus further resembling in conditions the buildings of town libraries.

The most interesting phase, however, of the Brooklyn buildings is the ideal method adopted in planning them. No competitive plans were invited. For each of the five branches to be first established, an architect was chosen by the board of trustees, and the five architects thus selected were constituted a board of revision, whose unanimous approval each plan must receive before final adoption. The librarian and consulting architect formulated the requirements for the branches, which in essential points were nearly identical, and taking these as a basis each architect held frequent consultations with the librarian in making his floor plans. The design of the interiors having been carefully worked out, each architect made a tentative set of plans, interior

and exterior, which were submitted to the full board of five architects. Plans corrected and improved under this criticism were then submitted to the librarian, who examined them (with the aid of other experienced librarians) in every minute point of practical administration; and the plans, after further revision in accordance with the librarian's wishes, were finally adopted by the trustees. This working together of architects and trustees and librarian, from start to finish, is a model worthy of general imitation.

The plans of the five branch libraries show how differently the same problem can be worked out by different minds, and they also show what effective exteriors good architects can devise for whatever interior requirements are presented to them. One is an example of the rectangular arrangement, another of what may be called the trefoil grouping of reading rooms and book room, with a central delivery desk, from which one attendant can supervise thoroly the whole of the main floor. The basements and upper stories provide for study rooms, lecture rooms, service rooms, and to some extent (by rearrangement of uses) for future growth or changes. There is so much light everywhere, and the rooms are so well coordinated that the interior effect of both buildings should be cheery and attractive while the facilities for effective and economical administration are excellent.

ROOF READING ROOMS IN THE BRANCHES OF THE NEW YORK PUBLIC LIBRARY

In 1905 the New York Public Library reported the following event which was recorded in *The Library Journal* (30:432) :

On June 10 the new Carnegie building of the Rivington street branch, at 51 Rivington street, was dedicated. This is the 11th of the Carnegie branch buildings to be opened. Its most interesting feature is an open air reading room on the roof. This is about 40 feet square. It is protected by a high iron railing, may be covered with an awning by day, and is lighted with electricity at night. This open air reading room is directly connected by a broad stairway with the general reading room on the third floor of the building. It is not intended to keep a special stock of reading matter there, but any one in the third floor reading room who desires to go to the roof to read may take his book or periodical there and do so. The roof will be in charge of a special custodian.

The next year they reported the success and development of the adventure as follows (*Library Journal* 31: 340) :

The open-air reading room, or "roof garden" at the Rivington branch has proved so successful and is so greatly appreciated by the people of the neighborhood that this feature is being incorporated in the plans of three new branch buildings, now in the hands of the architects. The new "roof gardens" will be somewhat larger than the one at Rivington street and more convenient. The book-lift will be extended to the roof, and shelter will be provided for magazines and papers in case of a sudden shower. These open-air reading-rooms increase the cost of construction by several thousand dollars.

The operation of these outdoor reading rooms has been discontinued for some time.

An article by Harold O. Wellman in 1910 covers fully and interestingly their experience with this out-of-door service which was tried by Los Angeles at about the same time, but which New York claims to have first incorporated in the plans of a new building.

Mr. Wellman was born in Yonkers, New York, in 1885, and educated at Harvard University. His library service covered 1910-13 as assistant chief of the Circulation Department, New York Public Library, since which he has been successively assistant secretary to the Boston Chamber of Commerce, 1913-16, with the American Expeditionary Forces, 1917-18, and secretary, The Russell Company, Boston, 1919 to date.

In the Circulation department of the New York Public Library five branches out of a total of forty are now equipped with roof reading rooms. The experiment of the open-air reading room was first tried at the Rivington street branch in the crowded lower East-side district, where a roof reading room 40 feet square was opened in June, 1905. The resulting attendance of 7483 readers during the first summer fully justified the expense of maintenance, and proved that roof reading rooms would be desirable features in other branch libraries situated in congested parts of the city. Accordingly, these were provided in the St. Gabriel's Park branch (East 36th street), which was opened in 1908, and also in the Hamilton Fish Park branch (East Houston street), which was opened in 1909. Similar accommodations have been made in the Seward Park (East Broadway) and Columbus (Tenth avenue and 50th street) branches, which were opened last fall, too late to test the use of their open-air reading rooms.

As a rule, about one-half of the roof of the building is used for this reading room, and protected around the sides by a balustrade, while overhead an awning is stretched across an iron framework, from which drop-lights are suspended for the use of readers in the evening. Small shrubs and flowers planted in boxes and placed in corners and along the balustrade relieve the bareness of stone and brick, and add greatly to the attractiveness of the roof. The tables and chairs used here are adapted for out-of-door service by a coat of water-proof paint.

For reading matter the usual supply of daily papers and current magazines is provided. Books are not, as a rule, sent from the shelves to the roof in response to calls from readers, as no practical method has yet been found of keeping track of books distributed in this way, but readers are expected to obtain their books downstairs and have them charged at the desk before taking them to the roof.

Statistics of the reading room attendance in the three branches that have opened their roofs to readers indicate that from 40 to 50 per cent of the total summer reading room attendance (from May to September, inclusive) is in the roof reading rooms. In general, the attendance has been gratifying, due allowance being made for weather conditions. Beginning with a total of 7483 "roof readers" during the summer of 1905, the attendance at the Rivington street branch increased to 14,651 readers in 1906, and 22,871 readers in 1908, while last summer the attendance in the roof reading room rose to a total of 28,586 readers. Below is given a table showing the monthly attendance in the three roof reading rooms during the summer of 1909:

Month	Rivington Street	Hamilton Fish Park	St. Gabriel's Park
May	3,304	1,850	7
June	5,670	2,687	1,143
July	8,246	1,038	1,036
August	5,317	6,152	572
September	4,423	4,536	218
October	1,626*
Total	28,586	16,263	2,976

In this connection it is interesting to note that at the Rivington street branch the proportion of adult to juvenile attendance in the roof reading room is almost equal, while at the Hamilton Fish Park and St. Gabriel's Park branches quite the larger proportion of such readers are children, who are allowed to use the roof only during the day. Picture-books and magazines are then distributed, and on busy days a children's assistant is placed in charge. Occasionally, story-hours are held on the roof for the children.

* Open till October 12.

It should not be inferred, however, that the roof reading rooms are in any sense playgrounds for the children, as articles in the press might lead one to suppose. For the fact remains, and should be kept in mind, that the roof is intended primarily to take the place of the indoor reading room during the summer. The same provisions for order and quiet apply on the roof as in the reading room downstairs, and children as well as adults are made to realize that the roof is open to them as a reading room, and not as a roof garden. That such an attitude in the administration of the roof is entirely practical has been demonstrated at the Rivington street branch, where students have made free use of the roof reading room.

And there are other factors to be noted in considering the use of the roof reading rooms. At the Rivington street branch, in the midst of a dense foreign population, the roof reading room may best fulfill its real purpose of providing a quiet place for reading and study in the open air, where opportunities for such are otherwise very limited. At the Hamilton Fish Park and St. Gabriel's Park branches these conditions are modified by the presence of public recreation grounds, which tend to decrease the summer reading room attendance.

It is still a question as to whether, in such branches, the roof reading rooms can be made so attractive, by preserving the advantages of the library and at the same time meeting the changed conditions outside, that the readers who have attended the indoor reading rooms during the winter may be encouraged to use the roofs during the summer.

With problems and considerations of this nature in mind, the opening of the roof reading rooms in the Seward Park and Columbus branches will be watched with special interest.

A \$5000 BRANCH LIBRARY BUILDING IN TACOMA

A practical and satisfactory solution of the branch library problem in a rapidly growing young city where economy must be practiced and the location may be temporary, is well described by Mr. Hopper, then librarian of the Tacoma, Washington, Public Library. He is now chief of the Circulation Department of the New York Public Library. He is a native of New Jersey, graduate of Princeton and of the Pratt Institute Library School.

His earlier library experience includes that of cataloger at the Library of Congress and branch librarian at the Carnegie Library, Pittsburgh. He has been on the Executive Council of the American Library Association, has held a number of other important offices, and is author of the section of the American Library Association Manual of library economy entitled, "Order and accession department."

Some interesting problems are presented in the development of library service by branch buildings, in a rapidly growing city with a scattered population. The census of 1910 credited Tacoma with 83,743 people, whose homes are distributed over a large area. The city is in a stage of growth where it is difficult to foresee the future centers of population, and there are as yet no congested sections. It is impossible for one library building to serve such a population. Branches in rented rooms temporarily supply the needs, but the people rightly demand attractive reading rooms such as can usually be obtained only in separate branch buildings. Until it is fairly certain how a locality may grow, it seems unwise to erect a large permanent building, and besides the city cannot afford to maintain such buildings. In view of these conditions the library board has adopted a policy of erecting small branch libraries, not to exceed a total cost of \$5000, including furniture and all equipment

except books. The buildings are of wood, and may be considered temporary, altho they are built to last fifty years with proper repairs. Every effort is made to make them attractive, and well lighted by both day and night. One consideration is that in ten or fifteen years the location of the branches may need to be changed. In that event it will then be possible to secure new sites and erect larger, permanent branches, without having old, monumental buildings on hand, too small for longer use, difficult to enlarge, too expensive to be discarded and practically unsalable. In the cities of the Northwest nearly all buildings in the residence section are of wood, and consequently library buildings of that material do not look out of place. The branches will contain no very expensive books or any impossible to replace, and consequently there is not the same objection to frame buildings that there is for central libraries.

The first one of these \$5000 buildings was completed and opened to the public in May at South Tacoma, a section of the city about six miles from the central library. Less than seven months from the drawing of the first sketches the building was in use.

A corner lot was available, having a frontage of 50 feet on a main street and 100 feet on the side street, on which the building faces. The building is of very simple design, whatever detail there is being after the colonial model, an effort having been made to avoid the prevailing bungalow type. Sides and roof are of stained shingle. Excavation is for furnace and fuel room only, but is well lighted from an area. A hot air furnace is used, there being two large registers in the main reading room, and one in the librarian's room. This method of heating is sufficient, as there is no really cold weather in the Puget Sound country, altho some fire is necessary about 300 days in the year. The foundations, front steps and porch are of concrete. The floor of the vestibule is red tile, and its sides are ceiled and panelled. The frame of the building, designed for economy in lumber, is so light that it would be impractical except for the projections at front and rear. The rafters are placed three feet on centers and each pair trussed. The ceiling is cross-furred. The architect, Mr. George Gove, of Tacoma, deserves great credit for the beauty of line and for the quality of materials and workmanship obtained for the money. The general contract (which included everything except light fixtures, movable furniture and floor coverings) and the architect's fees

totalled about \$4000. Everything else in the building except books cost less than \$1000. The reading room, which is 79 feet long, 33 feet wide and 15 feet high, is most attractive. It contains 18 large double hung windows arranged in groups of three on four sides of the room. All the windows are about 6 feet 6 inches from the floor except the two groups in the front wall. These are about three feet from the floor. In addition to the large windows there is a group of three small windows directly back of the delivery desk and above the roof of the extension. The shelving is six feet high, except under the front windows, and the periodical cases and picture book racks are built into the shelving. All shelving is fixed except four sections for reference books. The book capacity in the main reading room is about 8000 volumes. All the woodwork is of fir, a cheap but attractive wood, its figured grain taking dark stain beautifully. One half the reading room is for children and the other half for adult readers. Short book cases, dividing the room, may be used later. Each half contains five tables, each table seating six persons, the tables for children being in special sizes. Tables and chairs are of oak, simple and well made. The tables cost \$11.75 each. Seats for double the number now provided for will be installed as needed. The floor is covered with the best grade of battleship linoleum. In the reading room the electric light, which is surprisingly satisfactory, consists of eighteen 60-watt Tungsten lamps, each lamp being at the end of a chain about 10 feet from the floor, and each fitted with a Holophane shade. Indirect lighting could not be afforded. The ceiling and side walls are light in color and diffuse the light well. All light fixtures in the building, including the lamps, cost \$89.

The delivery desk, made by a local carpenter, is 10 ft. x 10 ft. and carefully planned. It has Library Bureau equipment, including charging trays, trays for readers' cards, and case for shelf-list and file of application cards. An extension 27 ft. x 8 ft. on the rear of the building provides for stairs, women's toilet and janitor's sink in one half and in the other a librarian's room, which contains sink, gas stove, cabinets and clothes closet. An outside door opens into librarian's room, an inclined cement walk for the delivery of boxes leading to the door from the street.

The building is insured for \$2500 and an additional sum is carried on the books.

HENRY E. LEGLER REGIONAL BRANCH OF THE CHICAGO PUBLIC LIBRARY

A type of library building combining characteristics of both a main library and a branch was built first in Chicago in 1920 by Carl B. Roden, and named for the former librarian, Henry E. Legler, who proposed this method of solving a problem which had become critical in Chicago, and has been recognized elsewhere, notably in Detroit.

Mr. Roden, Librarian of the Chicago Public Library, was born in Kansas City in 1871, received an LL.B. from the Chicago College of Law in 1891, and an honorary M.A. from Northwestern University in 1928. He entered the service of the Chicago Public Library in 1886, and progressed thru various positions till he became librarian in 1918. He was president of the American Library Association in 1927-28, and has held many other important professional positions.

The completion and opening of the first regional branch of the Chicago Public Library, fitly named for Henry E. Legler who proposed the regional system, presents the occasion for a brief explanation of this plan for the information of such of our colleagues as may be interested.

The theory of the regional branch had its origin in the exigencies of the Chicago library situation and is probably not applicable elsewhere in anything like the same degree. Chicago has never enjoyed the favor of large donors whose systematic benefactions have provided the means for adequate branch developments and comprehensive building programs in other cities. Such extension as has been possible was accomplished by the utilization of free space in parks and schools, usually much too small and always poorly adapted to library service. These were supplemented by rented stores whose one advantage of location is most often counter-balanced by the lack of all

other facilities for the accommodation of large numbers of persons, comprising both children and adults. Most of the small branches are thus little more than circulation centers in which the harassed librarians are primarily concerned with handling large and clamorous crowds in congested quarters. Reference work, facilities for study, and attention to individual needs are difficult under such conditions, and such conditions prevail in all but four or five of the forty-five branches in Chicago.

Since the only prospect of securing a building fund seems to lie in the slow accumulation of possible unexpended balances from the annual revenue, it follows that the chances of replacing these meager and feeble agencies with more effective installations are exceedingly remote. In prosperous times it was hoped that one branch might be built every two or three years. In ten years, therefore, Chicago might perhaps look forward to owning five properly planned branch library buildings. In these circumstances it was wisely resolved to place one large and well equipped branch in each of five main divisions, to become the center or nucleus of library service, and thus to reenforce the meager resources of the present little branches with ample collections near enough at hand to be quickly sent for, or to which patrons could be referred. Other library activities, impossible in the one-room installations, such as seminar work with schools and colleges, clubs, reading circles, work with foreigners, the blind, and other special groups, all conducted on a large and complete scale, are to be centered in these Regional Branches. Stack capacity will be large; that of the Henry E. Legler Branch is more than 60,000 volumes. Spacious workrooms are provided to house such activities as school deposit and traveling library work, and ample space for groups of students or other public assemblages is planned for, tho auditoriums are not included. In this manner it is contemplated to centralize in one of each of five complete and properly equipped regional branches all such intensive and extensive library work covering an entire district as more fortunate cities are enabled to do effectively and independently in all of their branches alike. The Chicago plan does not make for economy in administration and will probably not be widely copied. It is more or less an experiment, born of our necessities and expressing our desire to make a beginning, at least, upon the great tasks that lie ready to be undertaken all about us.

For the present an unfortunate contraction of revenues has prevented the full development of these plans in the Henry E. Legler Branch, opened to the public on Chicago Day, October 9th, 1920. Functioning simply as a neighborhood library, this beautiful branch has meanwhile justified its location and equipment by showing a daily use greater than that of any other branch in Chicago and indicating an annual circulation of well over three hundred thousand volumes. A brief description of the new building, the largest and finest library branch building in the city, and one of the largest and handsomest in the country, follows:

The new branch occupies a site on Crawford Avenue, comprising the block between Wilcox Avenue and West Monroe Street, exactly five miles west of the central library. In point of accessibility this location is unusually favorable, being reached by main-traveled roads, trolley lines and boulevards from all directions. Surrounding it is a populous residence district with thriving retail streets and, just beyond, large foreign sections. Numerous schools, public, private and parochial, and many professional institutions, especially medical and theological, are found within a radius of two miles. Opportunities for library service of great variety and extent are therefore not wanting.

The building is in English style of the Georgian period, built of tapestry brick with stone trimming, and measures one hundred eighty-five feet in length by seventy-six feet in depth, the façade rising to a height of forty feet. The façade is exceedingly handsome and dignified and the interior, while simple, is attractive in design and is proving practical and convenient in arrangement. The note of hospitality, consciously striven for in the plan, has been successfully achieved by the introduction of ample windows and spacious doorways. Daylight and an impression of freedom and absence of barriers and restraints greet the visitor on every hand. Two principal reading rooms, sixty-five by thirty-five feet, occupy the wings on the main floor, the central portion or rotunda containing a large charging desk and behind the latter a two-story Snead book stack. Small workrooms and offices flank the stack on either side. Beneath is a spacious basement in the south end of which is a cheerful story hour room, directly below the children's reading room and connected with it by a special staircase. A separate entrance from the side street leads to this story hour

room and upward to the children's room. The remainder of the basement is fitted with deep steel bins capable ultimately of holding 200,000 volumes, and here the entire school collection is housed during the vacation months, to be revised, repaired and redistributed. The transfer of all the school deposits to the new building has not only relieved the congestion in the main library, but has, thru the provision of better quarters and equipment, served to facilitate and expedite this work to a very marked degree. A garage for two auto trucks built into the southeast corner of the building, and an automatic elevator, provide for easy and rapid transporting and shipping of books in large or small quantities. The second floor contains, besides two large rooms corresponding to the reading rooms below, a staff rest room and a commodious work room. The building was erected under a general contract at a cost of \$185,000. Building operations were begun in March, 1919, and completed last October. Considering industrial conditions and costs during this period, the amount both of money and time required for the construction of the Henry E. Legler Branch may be regarded as reasonable and satisfactory. Needless to add, the great West Side community which it serves is highly pleased with its new branch and its librarian, Miss Pearl I. Field.

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RENTED BRANCH QUARTERS IN ROCHESTER

A temporary solution of the branch housing problem is that of rented quarters. Tho this idea did not originate in Rochester it was practiced more systematically there than in most cities. A description by William Frederick Yust, the librarian, appeared in *The Library Journal*. It includes the use of the plate glass window display of a business building. This form of publicity has frequently been advocated and occasionally used in modified form in regular branch buildings.

A sketch of Mr. Yust is on page 179.

In the absence of a fund for the erection of buildings the Board of Trustees resorted to the usual temporary method of renting quarters for that purpose. Several store rooms were secured for one of the first branches. A number of alterations had to be made. Such alterations are usually expensive and neither the owner nor the tenant cares to pay for them because they are for a temporary purpose.

We therefore decided to try to get some one to put up a building for us. A common form of investment is in buildings for rent, of which the first floor is for business and the floors above for residence. We reasoned that if owners were willing to arrange the first floors to meet usual mercantile requirements, they would be willing to do the same for library purposes.

Thru a real estate agent we came in touch with a prospective builder. We gave him a general idea of what we wanted. With him it was a simple business proposition. Would it be a paying investment? Would the rent from the library and from the second floor tenants together yield a sufficient return on the total amount invested, figuring the cost of land, building construction, taxes and upkeep?

Our requirements were outlined as follows:

Location. (a) Somewhere near the center of the district to be served;

(b) On a prominent thoroughfare—not just near it, but right on it;

(c) Preferably near or on a car line or lines;

(d) Preferably near to the schools of the neighborhood, but not directly adjoining;

(e) Not near any objectionable factory or business;

(f) Preferably a corner lot.

Building Material. Any substantial material not wood. They are all brick.

Building Arrangement. Approximate floor space needed not less than four thousand square feet, to be without partitions in one large open room except at the rear, where small staff rooms are to be provided. Separate exit for children, etc. Floor plans and specifications to be approved by the library. The construction is such that the space can easily be converted into stores when the library moves out.

Building Equipment. The owner is to paint the walls and ceiling (color to be approved by library), provide wood floor suitable for receiving linoleum, install light fixtures, plumbing, hot air furnaces (separate from other parts of building) to be operated by the library.

Furniture. Shelving and furniture are to be provided by the library. Shelving is of permanent type, quartered oak, but made in separate standard sections, each six feet long, fastened together; the head piece, or cornice, and marble base giving it the appearance of one continuous piece of shelving. It can be easily taken apart and moved to other quarters.

Terms of Lease. The library is to have full use of first floor and part of basement (partitioned off) for a period of five years with the privilege of renewal for the same period at the same rates. Rent varies in different branches from \$1500 to \$2000 a year, payable monthly.

Three buildings have been erected under this plan. The library floor space in each is about 40 by 100 feet. The open arrangement of the interior with only low glass partitions gives the maximum of light and attractiveness as well as of supervision and efficient service. Entrance is at the center of the long side, the end adjoining the street. A corner lot is prefer-

able because that permits entrance direct from the street. Otherwise it is necessary to have a walk from the street to the center of the building. Of course entrance could be made at the end of the building but that is less satisfactory than at the side.

The results achieved are worth noting. The interiors of these specially built quarters are really quite attractive and the arrangement works reasonably well. Our four branches in rented quarters have an average of 18,079 volumes each. They circulated last year an average of 165,874 volumes each, about nine times per volume. Probably enough floor cases can be added to give them a working capacity of 20,000 volumes. A live collection of that size may be defended as quite enough for a branch.

Our experiences may be summarized as follows:

The advantages are:

The plan provides for the establishment and operation of libraries without a large initial outlay of capital for buildings.

It permits experimenting with regard to the best location, type of building needed in a given section, etc.

It is economical. The rent paid by the library is less than would be the interest on the cost of ground and a building erected and used for library purposes exclusively.

The type of building in use abutting on a sidewalk of a busy street offers splendid advertising opportunities. Large and low plate glass windows displaying books and magazines, tables and chairs, bright lights, in fact the whole library in operation at close range presents a much stronger appeal to the man in the street than do high windows at a secluded distance from the passing throng. This is one way of bringing the library to the attention of the people and projecting it into their daily thot.

The disadvantages:

The buildings have no architectural beauty or attractiveness, and therefore fail in the educational possibilities of such a building.

Daylight is inadequate where there are tall buildings on either side.

It is difficult to provide for extension and growth.

The fact that the quarters are temporary tends to temporizing in their operation and use. Many things are to be but

never are done. Temporary expedients grow into permanent features.

The traditional relations of landlord and tenant in all their unpleasant ramifications are either present or in prospect. When there is need of repairs to the roof, the plumbing or the furnaces the librarian can only notify the owner, who may or may not attend to the matter. Our Monroe Branch occupies four stores and the contract includes provision for heat. We have had trouble over the lack of heat from start to date. For this reason we arrange, if possible, to operate the heating system ourselves.

Likewise the presence of other tenants on floors above is frequently the cause of disturbance and danger. Every one of the ceilings bears the marks of leaks and floods from the upper floor. One in particular is so patched as to resemble camouflage. The scars resulting from the fire which started in a second floor closet are still visible.

Our latest contract made January, 1923, will at least eliminate annoyances from second floor tenants. It calls for a one story brick building of the usual dimensions, which will be occupied entirely by the library. The cost of the building plus the value of the lot will exceed \$30,000. The Library leases it for a period of five years at a yearly rental of \$3000, with the privilege of renewal for a like period on the same terms. The amount of rent is arrived at by allowing 10 per cent gross on the amount of the investment. This rent is almost double that paid on earlier buildings and is a warning of what may be expected when those earlier leases expire.

In conclusion, libraries should be cautioned against embarking on a general policy of this kind lest it continue indefinitely. Our prospects for a building fund do not seem any better today than they did ten years ago, while the cost of land and of building has doubled. Our four other branches (not included in this article) are in old buildings owned by the city, buildings all or parts of which have been adapted for library purposes. In doing our best with existing conditions we have perhaps made these temporary quarters work too well and have trained people to think that when a building becomes unfit for anything else it may be used for a library. Perhaps the people have also learned that organized books and qualified librarians are more important than special buildings.

A MODERN BRANCH LIBRARY IN ST. LOUIS

Many of the features of this Carpenter Branch building are not new, as display windows had been used in the Cleveland main building before this, and other ideas such as having all rooms on the main level were not original. But the systematic use of experience, not only that of the librarian, but of all branch librarians acquainted with the conditions to be met, is responsible for the inclusion of this article from the pen of Dr. Bostwick whose name first appears in this series in Volume IV, *The Library and Its Organization*.

The two great stimulants to library development in the United States have been popular favor and appreciation with the accompanying demand for expansion and improvement, and the Carnegie gifts. Left to ourselves, we librarians should doubtless have made progress and ultimately reached the present status—perhaps about the year 1950. Of the two stimulants, I rate the former as much the more important—the latter is really an individual instance of it. We do not realize how much of what has been done, we have begun hesitatingly and unwillingly, pushed along by insistent popular demand. It was certainly so with our two most distinctive features—home use and open access. Their most bitter opponents have been librarians of standing. Fortunately for us, the *vox populi* was louder than the *voces bibliothecarium*.

But the *vox populi* had little or nothing to do with establishing branch libraries in St. Louis. There was practically no popular demand for them. A good system of delivery stations was giving satisfaction. Here it was the Carnegie gift that acted as the stimulant. The new branches were regarded as experimental—at least until the first two or three had proved a success. Soon came popular appreciation with the consequent Oliver Twist cry for “more,” and the other stimulant was in full action.

But before this began to function, the branches were too small, the book-stock too limited, the staff scanty. It was supposed that branches could be operated with a staff of two assistants! In fact, I believe that most branch libraries have been too small. We are coming to a tardy realization of this fact.

It was with a determination to remedy some of the faults that had become evident to us in branch planning and operation that we set about preparing for our St. Louis branch, the George O. Carpenter Branch on Grand Boulevard and Utah Place. It has happened, largely by accident, that I have planned and opened more new branch libraries probably than any other librarian in the country. In doing this I have indulged in some experiments, many of which have merely served to show that some arrangement or appliance did not in fact serve the purpose that it was expected to do. No experiment, of course, is a "failure," properly speaking. These negative answers were of positive value; but I am impressed with the fact that experimentation involving costly building-construction is unduly expensive and should be avoided if possible. To this end, we decided to omit and to include features whose omission or inclusion was clearly indicated by the library experience of the past twenty years. And in order to exclude the topographical equation and avoid the adoption of something that had succeeded in a distant city merely for local reasons, we decided to use the experience only of our own branch libraries.

Branch librarians were accordingly asked to submit lists of features in their buildings that had proved objectionable and should be discarded, and of features, not included, which they would regard as improvements. The result was an assemblage of a hundred or more suggestions, of both these types. These were read at a meeting, without mentioning their sources, and were separately discussed and voted upon. Those having only one or two votes were dropped, as evidently the result of individual taste or idiosyncrasy. Those having unanimous approval were adopted at once. Others were discussed further and finally those receiving a majority vote were adopted. The final result, as tabulated and submitted to the architect, Mr. Wilbur T. Trueblood, was as follows:

Wall safe for valuables.

Kitchenette for public, accessible from assembly room. Stove, cupboard, table and sink.

As many rooms as possible for public meetings. Minimum:
Assembly room for 200; Club room for 40, and Club room
for 20.

High baseboard on shelving to protect books when floors are
washed—10 inches preferred.

Lift should not open into children's room.

Staff kitchen separate from Staff room, with ice-box, cupboard,
sink, table and chairs.

Workroom (main floor) large enough to contain typewriter,
work table, 2 desks (one for mender), checking off table,
and at least 24 shelves. It is desirable that the dummy should
come up in this room.

Store room containing shelves deep enough for the largest maga-
zines, cupboards for over-stock books; locked, dust-proof
and reached by dummy.

Cut-offs for water and electric lights accessible to staff. Electric
fan outlets.

Stairway to basement supervised from desk.

Glass partitions on main floor.

Three spaces—adult, children, and charging desk, etc.

Separate entrance for children.

Slots in desk with issue drawer underneath.

Glass top on issue desk.

Separate lavatories for staff and public.

Avoid architectural features (moldings, flat top balustrades, etc.)
which will encourage children to climb.

Entrance near street level.

Some windows low so that passers-by can see in, when lighted.

Filing cabinets, pusher-drawers and catalog cases built into
charging desk.

"Over-size" shelf or shelves under windows.

Avoid sliding doors.

Locked glass-door bookcase for adults and for children.

Staff quarters if possible on main library floor.

It is interesting to note that the architect, who was most
sympathetic with this manner of procedure, was able in all cases
to work with this program. The result is a building that has met
with the approval of all who have seen it, of those who have
administered it and worked in it, and of the public who have
used it, for now over a year—all this to a higher degree, I think,
than I have known in connection with any other branch building.

The branch started out with a larger circulation than any other library in the system, and has since maintained this preeminence. While it is difficult to segregate particular causes, I believe that this result has been due in great part to our success in adapting the building to the conditions of its work and thus making its service smoother and more effective.

All service rendered directly to the public in the building is performed on one level, which is practically that of the street. There is no large front yard, and the building is so close to the sidewalk that a clear view of the interior is obtained by every passer-by thru the large, low windows, especially at night. In one part of the building—the assembly room annex—the front wall is directly on the pavement and has a display window, with show arrangement, as in a store-front. The assembly room annex takes the part of the building devoted to meetings and other community activities out of the basement, where it is usually located. Besides the assembly room, it contains a club room with kitchenette equipment, located in the rear of the speaker's platform and separated from it by wide folding doors, so that the whole rear space may be utilized as a stage for dramatic performances. A separate hallway and outer entrance between the library and the annex gives access to these rooms.

The annex itself, tho one story high, is so built that at little cost the roof can be raised and another story built in, should the library require additional space. The expense of this annex was very nearly balanced by the saving in excavation made possible by locating this space above ground. The cellar extends under only half the building and is utilized wholly for heating and hoisting apparatus and storage of various kinds.

The library space proper is of the "three-room" type—central part for entrance, delivery desk and some book shelves in the rear; space to right and left for children and adults respectively, with only wall shelving. The separation, however, is by open grille work, which gives the advantage of a "one-room" arrangement without its disadvantage. The children's room has a separate outside entrance for use in emergencies. Both rooms have open fireplaces. At one side of the adult room the building is divided into two floors, the lower used as a small stock room and the upper as a workroom and space for book discharge. This upper level has open archways overlooking the adult room and permitting supervision of that room by

assistants at work. This level communicates with the main floor, and also with the storage rooms in the basement, by an electric lift large enough to hold a loaded book-truck, thus avoiding the necessity of much loading and unloading.

The staff quarters communicate directly with the central delivery space, on the main floor, thru a short corridor, and include an office for the branch librarian, a staff rest room and lounge, a toilet room and a kitchenette with gas range and electric refrigerator. The convenience of having all these rooms on the main level is very great.

■

INTERIOR ARRANGEMENT

CONSIDERATIONS ON THE CARD CATALOG AND LIBRARY CONSTRUCTION

Edith Emily Clarke comes to her final statement that the "card catalog is the 'crux of library management,' and the central point of discussion of convenience and utility in library construction" by convincing logic based on experience as well as theory.

A sketch of Miss Clarke is in Volume IV of this series, *The Library and Its Organization*. Her death occurred in November 1932.

When the master-workman has with large strokes carved out a statue, then comes the apprentice to polish and finish it. The master minds of the library profession have carved out the bold outlines of a plan for library construction. We have, in fact, two plans, apparently rivals, but in reality not so. They are only the two extremes of the arc of variation, which any plan must describe when applied. We have, then, the stack system, with its economy of room, its glass floors and walls, and its mechanical appliances for fetching a book from the remote recesses of the vast labyrinth. We have also the departmental system, the *maison de luxe* of the student, with its insulation against the spreading of fire, and its distribution of work among a numerous staff. Not to be enrolled among the candidates for a choice, but condemned, defunct as to use and application, there still exists among us the old alcove system, piled tier on tier above a central hall—heat, distance, and gathered din of noises in an ascending ratio.

These three systems are generally characterized by their relation to one question, the first and most obvious problem of library construction, namely, how to store the books; books in stacks, books in separate rooms, or books all in sight in a great hall like "Ossa on Pelion piled." But there is another element to the live library, namely, the live librarian. In the dark ages, before the rising of the star of library science, to be sure, he was regarded as an incidental, an appendage, to be stowed away

in the darkest corner, and even now is familiarly known in trustee circles as the "paid help."*

Having in these days achieved conscious existence, he proceeds to make his wants known after the manner of young scions of a hopeful race, and clamors for administration rooms and construction adapted to his needs. This utterance of a want, unvocalized till now, I, self-consecrated priestess of an oracle yet dumb, and interpreter of the mutterings which arise in the dark grotto from the *men's universe* of librarians, now strive, tho imperfectly, to deliver.

In general, when a librarian lays down the principles which must govern library construction, he utters some such dictum as this: "The interior arrangement of rooms must be convenient and adapted to the uses of the library."

The most orderly and categorical statement* I have met with, issuing from the lips of one who has done very much to introduce common sense and the needs of the worker into library construction, while it enumerated five counsels of perfection, still ignores, or, as should rather be said, leaves on one side as a detail to be worked out later, the question of the arrangement of the administration rooms. The weightier matters of the law have been settled; it remains for me to take tithe of mint and cummin in the question, what conditions does facility of administration impose upon library construction? or, how should the working rooms of a library be arranged?

Popular education, the shortening of the hours of labor, with the change from hand work to machinery, the enormous increase in book production, and the multiplication of libraries are four things that have gone *pari passu* in the development of social conditions as we now find them. And hand-in-hand with this multiplication and rapid growth of libraries, a system of administration has grown up, unconsciously adapting itself to the necessities of the case. And here I must restrict my remarks to the United States, where all could start afresh, and development along the lines indicated has not been hampered or warped by survival of institutions from a time when modern conditions did not exist. The spirit of this development has been adaptability to rapid growth. This adaptability to rapid growth has been the argument also which has made capacity for extension such a factor in library architecture. The elements of this system of

* *Boston Post*, October 22, 1890.

* See *Library Journal*. 15:C. 107.

administration are the *card* catalog, *relative* as opposed to fixed shelf location, and the *unbound* shelf-list. The significance of these emphasized forms which these ordinary tools have come to adopt in modern library methods is their capability of "indefinite intercalation," which allows of infinite expansion, removal, contraction, fire, dispersal, or separation, in fact, any of the ordinary casualties or extraordinary modes of existence without adjustment of machinery or rearrangement of the collection. The card catalog is now almost universal, at least for the staff if not for the public, as being the only form in which the book record can be kept complete to date and conveniently consulted; the location on shelves by subjects in their relative order allows of the shelf classification being kept in order even when the books are filling up the shelves with great rapidity; the unbound shelf-list, allowing insertion at any point, avoids that remarking and rearranging of the lists which a phenomenal growth under less well-considered management often entails. But of this triplicate of library appliances the greatest in size and the key to the whole is the card catalog. That is a stationary piece of furniture occupying an appreciable amount of floor room, has the greatest amount of labor expended on it, and that of the most expensive kind, and belongs alike to public and staff. Let this stand in our discussion, then, as the representative of the library tools.

The catalog, then, as the nucleus of that mysterious interior working of a library which the outsider finds it so hard to understand, the catalog we must consider in its relations to (1) the staff; (2) the books; (3) the readers. Here we have a second set of three as regards the working of the library as a whole, the three links in the chain by which the library performs its functions of generating, storing, and distributing its power. But one of these three stands in two relations, each of which must be considered separately. The books are to be distributed (1) for outside use; (2) for reference or interior use. We must therefore consider these two functions as separate members, and speak by metonymy of the members of library routine as (1) the books; (2) the circulating desk, or, because it is shorter, the charging desk; (3) the catalog, and (4) the reading room. Of these 4 the only variable is the reading room. This plays a different rôle in different libraries, supplementing, interchanging and dividing its work with the charging desk. In the more common type of libraries, that, namely, which circulates its books, reserving its reference books to be consulted in the build-

ing, all four of these elements appear as I have presented them. In a purely reference library the charging desk disappears, forcing its functions on the reading room, which serves all the purposes for which the public come to the library. Again, a type between the popular circulating and the purely reference library is the university and the society library, where the books are used largely in the building as a club-room or study center. Here the relations of charging desk and reading room become more complicated, as the duties of the latter are more crowded and various, while the former does not cease to exist.

Now having our *dramatis personae*, as it were, well in hand, it is perhaps time that I define more clearly the limits of application of my inquiry, that we may have before us the stage and setting upon which the motive is to be worked out. And here I shall expose myself most openly to criticism of the carping kind unless it be understood that I classify only the mere temporary purpose of illustration, roughly and simply, to make more plain the application of my remarks.

First, then, there is the town library, averaging 10,000 volumes or over. Given a high desk standing guard over rows of bookcases behind and an open floor-space with tables in front, one librarian with a couple of assistants for odd hours, perhaps an emergency or work desk in some corner, periodicals, possibly in an adjoining room, with special attendant, card catalog standing beside desk, accessible with equal ease to librarian and readers; added a *sine qua non*, a trustees' room, with perhaps some closets and anterooms, and we have the main features of the typical town library of class one. It may be seen to advantage, tho not as a town library, in the handsome rooms of the Y. W. C. A. in New York City.

Secondly, we have the ordinary city library, whose prospective limit is not far from 100,000, tho it may, under certain restrictions as to readers or functions, reach several times that size, and still come under class two. Situated in a community and under conditions which point to its being stationary to its type; it is this class that I have in my mind in all my discussion here. And their number is now becoming far from despicable.

Beyond the limits of my consideration are class three—libraries whose growth and future are unrestricted, storehouses for posterity. These last, along with whatever active part they take in purveying ephemeral reading-matter, still more and more

as their collections accumulate, and time strips them of their first and temporary interest, serve the student and man of research. Because of their size and cumbersomeness these must duplicate their card catalog, must have supplementary lists, and most advisably in course of time will resort to an auxiliary printing establishment for their catalog work instead of manuscript.

Class one is too simple and class three too complicated for our discussion; but it is in class two, in the exigencies of old buildings unadapted for their purpose, or in new constructions of limited floor-space, light, etc., that the question I have propounded looms up, a study to the librarian, who understands it; a pitfall to the architect, who does not know that the problem exists, and a snare to the trustee, who thinks he comprehends the terms of the equation, but falls lamentably short of doing so.

Marshalling our four pieces now upon the board, and considering in detail the requirements of each one as regards the others, we simply reassert a fact often insisted on when we say that (1) the books must be convenient and accessible to every one in the library. They must be close to the charging desk—the distribution center—near the reading room, where they will also be wanted, and not far from the catalog and catalogers, who will draw upon the general collection for their working supplies, as well as upon their special library. I believe this desideratum is not generally ignored, or when the work rooms are located inconveniently to the book rooms, it is a slight to the work rooms and not to the books. There is also much in the arrangement of books in their large divisions, placing them most conveniently to the point of greatest use; as bibliography near the reference collection which the catalogers use, fiction near the charging desk, etc. This is a different consideration from the arrangement of classes according to their natural and logical order, *e.g.*, language near literature, applied science near natural science; or their disposition according to their uses, as art books with tables and plenty of light, music books in a separate room where an instrument may be used; but it is also worthy of thought.

Second: that (2) the charging desk, which is the point of contact of an instreaming and outgoing public with the books, must make the shortest possible connection with both, goes without saying. It must be as near the entrance as possible, at least widely and openly accessible from it, not thru study or work

rooms, but thru open hallways, avoiding staircases, if possible. As many visitors go no further, the ornament and magnificence of the building may well be massed here as the point of architectural display. That the *public* should have free ingress and egress commends itself to the most cursory thought; that equal facilities with the books—that other public with which it must effect a touch-and-go contact—are needed, will be conceded as soon as propounded. In its relations to the reading room, which, as we have seen, is the reciprocal of the charging desk, its work increasing in proportion to the restrictions laid upon the charging desk's constituency, their juxtaposition is not so required. They serve a different clientage, distinct in their ends and methods if not in their personality, and may, as far as interconnection of their work goes, be located in different parts of the building. But their interdependence upon the catalog prevents this, as we shall see.

These most obvious relations, which to any one who has not given special attention to the subject, and to some who have but are not sufficiently acquainted with the details, seem to be the main if not the only points, are easily disposed of. But the hinge of the difficulty is with (3) the card catalog, if it is the only catalog.

No doubt it must stand side by side with the charging desk that he who runs may read in it, open of access, at the right hand of the crowd, with no rooms to traverse and in open view. Of course, it may be further within the building, the charging desk standing between it and the door that readers may in quiet record their titles or shelf numbers, and passing out obtain what they call for. The question is, Can the card catalog be so placed, and yet fulfil the other requirements laid upon it? In other words, How can a library manage to have one catalog serve both public and staff? or, Is there a necessity in library arrangement for duplicating the card catalog?

Here there is no question of whether a manuscript catalog commends itself to the public, of the crowding at the cases, and its failure as light literature for the dictionary shelf in the home circle. No one who has seen the little boys scarcely tall enough to see the clerk over the delivery desk in the Bruce Library in New York cull their shelf numbers with equal ease and discretion from the card catalog there, will say much about the adaptability of the card catalog to the general public.

But can the catalog be readily accessible to the readers and at the same time used by the staff as constantly, the workers' other requirements of room, quiet, light, convenient to other departments not being thereby prejudiced? If it cannot it is a great blow to the card catalog; but thoughtfully arranged libraries, where this has been successfully accomplished, tell us that it can. Attention must, however, be given to it from the beginning of the plans.

What are the staff's requirements? Quiet, light, room, air, of course. They shelve a special library of their own working tools, and use for a secondary supply those encyclopedias and manuals which are on the shelves in the reading room. And, as this use is reciprocal, the public and the staff using many of the same reference books, which are among the most expensive of the library stock and must be duplicated if they cannot be used in common, they must be adjoining the reading room. They must have easy access to the general collection. They should hardly have to pass thru the reading room to reach it. This seems to locate them with the reading room on one side and the book room on the other. There is still another side for the charging desk, without completely shutting it in from the light which may come from above or from the free side remaining. How can they locate the catalog so as to have it convenient for themselves and accessible to the public from the charging desk and the reading room, especially convenient to the former in a circulating library, and to the latter in a university library? The public must not enter the administration room, for that would cause disturbance. Shall it be after the plan of the University of Pennsylvania Library, where the staff, being placed in rooms parallel to the reading room, the catalog is shelved as a sort of partition between, and the drawers can be drawn out and consulted from either side? Or shall it be simply so arranged that the rooms for the workers shall be next to the public represented by charging desk and reading room, between them and the books in a measure, and then the catalog be placed in one room or another as other exigencies direct? Thus is it carried out in the Albright Memorial Library in Scranton, and in Mr. Ittner's* plan for a university library—an excellent arrangement. The new building at Yale, so far as the printed description can give data upon which to base a

* See *Library Journal*. 15:10-11.

theoretical criticism, would have one more detail added to its excellence could the cataloging room described as at the end of the circulating room have been brought forward to adjoin the reading room, and the librarian's office put also on that side of the building.†

But one thing above all others; do not put the catalogers on one floor, the charging desk and reading room being on another. Do not force the workers to pass thru the reading room to reach the books. Do not put them on one side of the books, the public on the other, if you expect to give your public equal benefit with the staff in the completeness, fulness, and accuracy of the card catalog. Any one of these is as serious a defect as to have the books on a different floor from the circulating department: indeed, worse, because books can be brought by mechanical appliances, while the card catalog is not peripatetic and cannot be consulted by proxy.

The position and requirements of the reading room have perhaps been sufficiently exploited in the previous discussion, so I will say no more about it than that where it has attained the full measure of its stature, as the guide of all the research which centers in the library, it demands the fullest possible service from the catalog, makes all conceivable draughts upon the books, and calls at various times for the cooperation of every person in the library, including especially the catalogers, with their expert skill and their social tools. Its functions being so bound up with the other working departments, its location near them need not be further emphasized.

In conclusion I will add that there are certain rooms about which it makes not the slightest difference, as far as regards administration, where they are situated. One of these is the trustees' room—given a pleasant exposure, convenient size, heat, and light, and the trustees can settle comfortably to business either in cupola or basement, so far as the running of the library is concerned. The same with the museum or audience hall, if either exist; so long as it is accessible by hallways, without tramping thru work or store-rooms to reach it, its location counts for nothing in terms of library economy.

There are again certain rooms whose location is clearly indicated by their uses, tho not sharing in those complex and mutually interdependent reciprocities of use which we have

† See *Library Journal*. 14:168.

been considering. Such rooms are those for unpacking and collating. These are often conveniently accommodated in the basement, directly under the cataloging rooms and connected with them by a lift.

"It is some saving, and a library is a business in which space and time furnish the real margin of profit, that a book entering passes without crossing its path, across the cataloger's desk, into the stack and out again at the distributing desk."* The librarian's room, where visitors led by business or curiosity are received and the book-agent held at bay, should not be far out of the way, secreted behind the other work rooms nor down a dark hallway; but accessible alike to staff and public, and near enough to the staff to share their work and their tools, the room being, like the office, the medium between the work of the library and the outside world.

Of the many points remaining in the arrangement of library interiors my purpose is not to speak further, an exhaustive treatment of details whose permutations and combinations are inexhaustible, being neither practicable nor desirable. My object will have been served shall I have indicated clearly that the card catalog is the "crux of library management" and the central point of all discussion of convenience and utility in library construction.

* Talcott Williams in *Library Journal*. 13:241.

a full block of ground 240 x 256 feet, and the plan was adopted of building for the present one section of the future greater library for Greater Seattle. After two years spent in securing state legislation and decisions of the courts, selecting the site and holding an election to authorize its purchase, the trustees in January, 1903, took up the actual problem of construction.

Professor William R. Ware was secured as professional adviser. His ability and eminence were of great service, especially in obtaining a fair competition; for the architect of a public building must be selected after a more or less open competition. Professor Ware assisted in preparing an 18-page program setting forth the problem and regulations, which has been pronounced a model. The whole competition, it is believed, was eminently fair and as satisfactory to the contestants as it has proved to the trustees.

A brief account of the competition may be useful. Six architects of national reputation were invited to submit sketches, each receiving \$200 to cover the approximate cost of draughting. Three premiums of \$200 each were also offered the authors of the best three designs submitted by local architects, whether they should be considered for the grand award or not. The competition otherwise was practically open to any architect who chose to enter. Each architect, in addition to the printed program, was furnished with a topographical plat and four photographs of the site, a map of the city and blue prints showing tentative floor plans.

The thirty sets of plans received brought out a great variety of treatment of both interior and exterior, and Professor Ware was authority for the statement that the designs were so uniformly good that he wished for the sake of reaching a decision some of them were not so good. The perspective of architect P. J. Weber's successful design speaks for itself, and many other designs seemed almost equally attractive.

Inasmuch as this building is one of those libraries "built from the inside out," if the interior does not prove a success from an administrative point of view, the present administration will have nobody but themselves to thank. Altogether, it may fairly be characterized as "a librarian's library." Every important type of American library building was visited and studied in preparation for its planning, and the graphic criticism of plans was not asked from the profession at large, many

of its members had been consulted before they were completed. Personal experience with this particular library and its constituency in five different buildings (for it had had four removes and a fire in its ten years of existence) lent something of the homely practical to accumulations of theory.

To plan a structure containing the *vitals* of a library, all equally able to grow double or treble, but the building always remaining a symmetrical whole, was the interesting problem. It is because this problem has perhaps not been presented before in just this light that I have ventured to bring these plans to the attention of librarians.

The problem was rendered less complicated by a firm belief in simple subdivisions of space. This conviction was not quite so radical perhaps as some—that of Mr. Dana, for instance; but it was a foregone conclusion that a library which had long maintained that the only proper limitations on the public's freedom of use were those proved necessary for the safety of the property would not favor elaborate subdivisions of its stock or its floor space. Taught also many a lesson by poverty during its short life, facility and economy of administration were especially desired by the library.

A square site naturally suggested the quadrangle type of structure. That side of the quadrangle which was to be the principal front could be built first, taking care to make it sufficiently massive, with a stack added, to furnish room for all modern library activities. The blue prints furnished competing architects showed approximately the size and relations of the various departments to be provided and a sketch of proposed future extensions.

The cut of the main floor plan shows the form of the building now being erected and illustrates the simplicity of its subdivisions. It also furnishes a hint of the method of future enlargement. By extending one or both of the end pavilions, additional room for public use can be gained as desired, for on every floor these large end spaces are the seat of the principal public functions of the institution—those whose growth may be predicated with all certainty. The south end of the building contains the children's department on the ground floor, the large open-shelf circulating and reading room on the main floor and an assembly hall on the top floor. The north end has on the ground floor the newspaper room; on the main floor,

reference headquarters; and on the top floor a space, now appropriated for an art gallery, which will one day be the home of special collections and specialized study work. The elevator will naturally be installed in the north end.

All floors, except a mezzanine, are 200 feet long by 70 feet in extreme width. The height of the basement is 12 feet, of the main story $22\frac{1}{2}$ feet, and of the top story 15 feet. Seven stack stories of $7\frac{1}{2}$ feet each are accommodated, the initial story beginning three feet below the general basement level.

The basement floor is placed just enough below grade to leave the full-sized windows flush with the ground. This floor contains, besides the children's and newspaper departments, the bindery, branch delivery room, document room, men's conversation room, toilets and mechanical rooms.

The delivery desk, as may be seen, is at the heart of the building, with the administration rooms grouped about it so that nearly every worker is within a few yards of that center, which should largely promote efficiency and economy. The work rooms in the interior angles in the rear are but one-half story in height. The delivery room and those in the end pavilions are the full story; the remainder of the floor has over it a mezzanine containing the trustees' and librarian's rooms, and the staff luncheon room, kitchen, and rest rooms.

The top floor has large skylights as well as full-sized windows; at present nominally to be used for art gallery and museum and for assemblies, this floor is largely in reserve for the future.

The stack is not designed for a "wide-open policy"; but on the other hand, the keynote of all the floor plans is that the library belongs to the people, and that the staff is there to serve them. Almost no space is used up in halls or corridors. As a final precaution against irreparable errors of present judgment, every partition in the building, except those walls that are its principal support, is made of hollow tiling or glass, and can be removed at will in case experience suggests a different arrangement or expansion demands it.

The only feature of these plans which is considered in any sense a contribution to library architecture is the spacious south reading room, seating now about 150 readers, and easily enlarged, which will have on open shelves 20,000 volumes of standard books, as well as all the standard periodicals, and which at the

same time will be the open-shelf circulating room, doing the bulk of the circulating work of the central library. In this one room will be gathered practically everything but newspapers which the ordinary man would ever want to read, his alike to borrow for home use by simply having it charged at the door, or, if he chooses, to taste and then enjoy on the spot. It seems to me that this room is the true type of the library of the future, be it large or small, performing best its great function of bringing the man and his book together.

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EVOLUTION OF LIBRARY BUILDINGS

This survey of libraries in Wisconsin from 1888 to 1906 which appeared in the *Wisconsin Library Bulletin* gives an indication of the intensive development of interior arrangement and design in accordance with changing views of the purpose of public libraries.

A sketch of the author Frank A. Hutchins is in Volume VI of this series, *The Library Without the Walls*.

The general interior plans of the library buildings erected in Wisconsin during the past eighteen years show most strikingly the recent changes in the aims and methods of public libraries.

The first building erected wholly or mainly for library purposes in Wisconsin was the C. C. Washburn library in La Crosse in 1888.

At that time four of the eight free libraries, directly under municipal library boards, were in city halls and four in rented rooms in business blocks. None of the more numerous associations or of the few circulating libraries managed by school boards were in buildings or rooms especially designed for work.

With one possible exception, no library issued borrowers' cards to persons under fourteen years of age, tho in most places children could draw books on their elders' cards and more attention was given to children's books than formerly. One small library stood alone in granting access to the shelves, and children's rooms were unknown.

The La Crosse building was modeled after one in Coldwater, Michigan, whose plans were drawn under the general direction of W. F. Poole, the recognized leader in the American library world. The dominant thot in the Coldwater and similar plans was to safeguard the books from destruction by the elements and loss by thieves.

The La Crosse building cost less than \$20,000 but could not be built now for much less than twice its original cost.

It is of brick with a corner entrance. The delivery room (there have been some changes) was comparatively small. In the main part were the librarian's room and a reference room; on the second floor an assembly room. The reference room was small and of fireproof construction. The book room in the rear of the main part was rectangular and was separated from it by a fireproof wall with a small door back of the delivery desk, which was jealously guarded. The patrons, with very few exceptions, selected their books from a finding list, "Unsung, unseen." About the building was the peace and quiet supposed to be proper in temples and libraries. Crowds of children and people browsing among the books would have disturbed the occasional students.

There were the orthodox methods in libraries large enough to have their own storhouse for considerable numbers of precious books.

In tracing development from this stage we shall consider only those buildings costing from \$10,000 to \$25,000. When a much larger amount is expended and a number of assistants can be employed to care for reference, children, reading and other special rooms, the problems of the builders are different.

The Williams building, completed in Beaver Dam in 1891, followed the La Crosse and Coldwater buildings in a general way, but cut out the partition between the delivery room and the book room entirely and put in wall shelving of wood instead of metal stacks. Small tables were placed in the book room and free access to the books was encouraged. Children were welcomed and the age limit reduced to twelve years. The reading and reference rooms in the main part were separated from the delivery room by plate glass partitions, which allowed full supervision from the desk and led to greater freedom. The librarian's room was designed to afford privacy and opportunity for patrons who must have quiet chats. There was a small assembly room on the second floor, and a room in the basement was supposed to be ready for boys' clubs.

The E. D. Smith building in Menasha, completed in 1898, showed other advances. The entrance in the middle of the front led directly into a large room which included reading and reference rooms in the front and an open book room in the rear with wall shelves. At the left was a closed room of fair size for

committee meetings and conversation. On the second floor was an assembly room and adjoining it a small club room, so arranged that the two could be thrown together. The assembly room was welcomed by the club women of Neenah and Menasha, who raised funds to make it more attractive and showed the great benefit to be derived from such gathering places. In the basement was a room which the boys could and did use for a natural history collection.

The Moon building in Stanley cost about \$15,000 with books and other equipment complete, but it was so well made and furnished that it was much smaller than most buildings costing two-thirds of that amount. It was built in 1900 and was open thruout the first floor with a clearly defined and distinct children's department,—the first in the state among the smaller buildings, tho a few libraries had children's tables, chairs, and corners, and the Milwaukee building, completed in 1898, had a large room for their use.

In La Crosse, Beaver Dam, Menasha and Stanley, the windows in the main parts were in the ordinary form, while the book rooms in the rear were lighted by high windows.

About this time our ideas of the kinds of work which might profitably be carried on in connection with libraries were expanding. Prices of labor and building material were advancing. Inevitably librarians and boards attempted too much. Architects knew little about libraries, and in the eagerness of competition promised too much. Librarians and people were eager to add to book, reading, reference and children's rooms, auditoriums (so-called), class and club rooms, museums, space for art collections and boys' rooms. Two progressive library boards wrote to Mr. Carnegie asking permission to put gymnasiums in their library buildings. One wished to provide quarters for a musical society.

Since 1900 nearly thirty buildings have been completed. The plans have steadily become more simple. There are fewer rooms and fewer partitions.

In buildings costing less than \$25,000 and at least \$10,000, the generally accepted plan provides for a one-story building with a high basement. The entrance to the main floor is in the middle of the front. The delivery desk faces the entrance. At one end is the children's room; at the other the reading room. In *one* corner is a small librarian's room which is enclosed. Adjoining

the entrance is an enclosed space, opening into the main room and called, by courtesy, conversation room. The front has low windows, but there are high windows on three sides, and therefore there is a great deal of shelf room.

The reference books are placed in the rear part of the reading room and the librarian's room back of the children's department. Tables and low, movable book cases are scattered about the main floor and every effort is made to give as many of the comforts and attractions of the fine home library as possible.

Instead of the partitions which shut off light and air, which were formerly used, book stacks are used as the wall shelves are filled. These are placed in such manner as to form alcoves. Alcoves were most attractive features of some old-time college libraries, and it is a luxury to see them returning.

When the partitions were beginning to come down, an objection was made that people needed a place for conversation and these rooms were planned to meet that objection. Every one now favors the open room plan and the conversation rooms, so-called, are too open for conversation, too closed to be attractive and mar the general appearance. They will probably go, the partitions of the librarian's room will be low and of glass above the height of a desk, and light from all the windows will pour into the whole room. Desk, tables, book stacks and everything possible will be movable and ready for the day when additions to the building will be demanded.

In the basement the smaller buildings have, in addition to boiler, coal and janitor's room, a work room for the librarian, under her first floor room, and an assembly or class room. Boards having \$20,000 or more to expend add a men's club room. Sometimes the latter has the preference, but the tendency is to have fewer rooms and have better work done in them.

This much is plainly evident. In eighteen years we have radically changed our view of the purpose of a public library. We will undoubtedly make great changes and extensions in the future. Every new building should be made so that it can be economically extended or adjusted to new demands and new opportunities.

My own impression is that we shall constantly move nearer to the people. Some time I hope to see a library building in the center of a busy town, with the main reading room as easily

accessible and as open to the street as a popular bookstore, with a flash light to speed an invitation in the evening to every wayfarer and idler and bright rooms to bespeak welcome, rest and refreshment.

Libraries are becoming more hospitable, more intent on the business of educating the masses. They are conforming more and more to the methods of the up-to-date business house. The architecture should show the spirit.

Fortunately we have developed a class of architects who have made special studies of library problems and who are competent to adjust the general plan to special local conditions and who can make attractive exteriors and interiors without sacrificing comfort, utility or convenience.

COLLEGE AND UNIVERSITY LIBRARIES

College libraries were among the first libraries established in this country, and perhaps their very age has been one force controlling their development.

Seating and shelving capacities are important tests of changing conceptions of college library needs. The Yale Library of 1890 provided for ninety readers and 200,000 volumes. Its building of 1931 provides reading room space for over 700, and in addition, 330 stalls and many special rooms for advanced students, and shelves 2,000,000 volumes.

Graduate and undergraduate needs, and centralized and decentralized organization have resulted in widely different but equally attractive types of buildings. Several contrasting types and varying principles are illustrated in the following articles.



STERLING MEMORIAL LIBRARY, YALE UNIVERSITY

BROWN UNIVERSITY LIBRARY

Together with its dedication we have here from a *Library Journal* editorial a careful statement of the principles followed in designing and arranging this building which seems to illustrate the best wisdom of its day for the college or university library.

The new library building of Brown University, as already noted, was dedicated with appropriate services on Saturday, February 16th, 1878. The chairman of the Building Committee, Rowland Hazard, Esq., an alumnus of 1849, in his address, gave an account of the origin and progress of the building, alluding in fitting terms to Mr. John Carter Brown, to whose liberality, and that of his family, the college is wholly indebted for the gift; and outlined the two theories that prevail in regard to library buildings generally, viz., the one that would place the books in a storehouse, to which only the librarian and his assistants have access; and the other, that would construct the building so that the books could be both seen and handled by the public.

Mr. Hazard closed by delivering the keys, in behalf of the committee, to President Robinson of the University, who, in his reply, spoke of the building as "admirable, spacious, complete, massive, imposing, and enduring," and of the library to occupy it as "not unworthy of its place." "Its fifty thousand volumes," he added, "have been selected under scrutinizing eyes, with unremitted care, that the best of authorities in every department of learning should find place on its shelves." He closed his remarks with prayer, after which Mayor Doyle, of Providence, responded to a call from the President, in a few words of congratulation. The keys of the building were afterwards put into the hands of Mr. R. A. Guild, who for more than thirty years has been the librarian, succeeding the late honored and beloved Professor Jewett.

Monday, April 29, Mr. Guild moved the last book into the new building. Fifty thousand volumes, any quantity of pamphlets, papers, furniture, etc., were moved in just ten weeks. Since then

Mr. Guild has been occupied in arranging alcove by alcove, marking and shelf-listing, preparatory to the final work of cataloging.

The late Mr. John Carter Brown, a Fellow of the University, whose costly collection of early American books is world-renowned, bequeathed, in 1874, a lot, together with fifty thousand dollars for the erection of a fireproof building for the library. This sum, with a previous donation for the same purpose, and the accumulated interest, amounted eventually to seventy-six thousand. To this amount Mrs. Brown added twenty thousand, in order that the building might be completed without expense to the college. At a meeting of the corporation, held in June, 1875, a special committee was appointed, with instructions to procure plans and estimates. Among the competing architects were Gen. William R. Walker and his associate, Thomas J. Gould of Providence. These gentlemen, contrary to the usual practice, first consulted skilful and experienced librarians, in order to ascertain from a professional standpoint what are the needs and requirements of a true library building. The principles adopted, stated in brief, are: First, that the site should be well chosen, dry, and airy, and not too near other buildings; second, that the materials should in the main be of brick, stone, and iron; third, that it should be well warmed, well lighted, and thoroly ventilated; fourth, that the center should, if possible, be a cross, with octagonal radiating wings; fifth, that the shelves should not be too high, in order to obviate the necessity of using ladders or steps; sixth, that the shelves should be movable, resting on pegs, made either of brass, as in the British Museum, and in most English and Scotch libraries, or of hard wood; seventh, that the building should be so constructed as to admit of a proper classification of the books, to allow of future extension, to have all needful conveniences, including the librarian's room, a committee room, packing room, good basement rooms, separate rooms for special collections, etc.; and, finally, that it should be constructed so as to meet its special requirements, whether for circulation, like most public libraries, for study and reference merely, like the Astor Library, or for both uses combined, like college libraries generally.

The present building meets, most happily, all these requirements, and is, moreover, that exceedingly beautiful, both in its external appearance and internal finish and adornments. The lot,

one hundred twenty feet square, is on the corner of Waterman and Prospect streets, overlooking the lawn in front of the college buildings. On the north is a gangway twenty feet in width, and adjoining it on the east are the grounds of the Rhode Island Historical Society. The style is the Italian Gothic, so called, the walls being of pressed brick, with stone trimmings, and the roof of wrought iron and slate. Indeed the only wood in the structure thruout is in the doors and cases. The entrance porch on the south is mainly of Nova Scotia olive-stone, with alternations of blue slate in the arches. In the keystone of the arch is the owl, guarding his treasured volume, while over the doorway is cut the seal of the college. The hallway, which has a double entrance, is twelve by sixteen feet. On the right is a committee room, and on the left the librarian's room, both of the same dimensions with the hall.

The center is a reading room, thirty-five feet in diameter, having a height of sixty-eight feet, with two octagonal galleries running around it, and extending into the different wings. It is perfectly lighted from above by twelve large windows in the first cupola, and sixteen smaller windows in the cupola above. The floors on the first story are thruout of stone and marble, and on the second and third stories they are of iron. In a corner on the left, upon entering, are cases for reference books pertaining to the west wing, which, with its three stories, is reserved for Theology and History. On the right are reference books pertaining to the east wing, which is reserved for Belles Lettres; while in the north-east corner are reference books pertaining to the north wing, which is reserved for Science, Philosophy, and the Arts. Before these several cases are beautiful tables of ash, four by eight feet, with racks in the middle for periodicals. In the northwest corner is a case of eighty drawers, for the card catalog, while directly in front is another table, of like dimensions with the others, having a handsome standing desk, with mahogany top, for the charging and receiving of books. The three wings are octagonal in form, and contain twenty-four alcoves each, eight on a floor, thus making seventy-two alcoves in all. Each alcove has a window, while the corner alcoves, which will admit of extension, have two windows. The outside dimensions of the wings are twenty-eight by thirty-nine feet; the inside dimensions twenty-six by thirty-five. The extreme outside length of the building from east to west is ninety-six feet, and

from north to south eighty-six feet. On the first floor there are nine shelves to the alcove, thus necessitating the use of short steps.

On the second and third floors there are but seven shelves to the alcove, the highest shelf being within easy reach, even to those below the ordinary stature. Half of the alcoves have eight presses each, and the other half have seven. The shelving capacity of the building at present is for ninety thousand volumes. In each wing are convenient cases of drawers, eighty-four in all. The furniture of the various rooms and wings is of light ash, the cases are of butternut, while the shelves are made of whitewood. In the second story, on the south, is a fine spacious room, sixteen by thirty-six feet, with table, shelves, and cases of drawers for large illustrated books, paintings, engravings, and works of art. Directly over this room is another, of the same dimensions and beauty, intended for pamphlet literature, of which the library has an exceedingly rich collection—the accumulations of a century. In the basement are all needful conveniences.

The entire estimated capacity of the building for the proper accommodation of books is one hundred and fifty thousand bound volumes. When it is remembered that the library of Glasgow University, now in the fifth century of its existence, with nearly two thousand students, has only one hundred twenty thousand volumes, while the library of Edinburgh University has less than one hundred fifty thousand volumes, it may reasonably be inferred that the building here described will be ample for the wants of the present generation of professors and students, as well as for generations to come.

A word in regard to heating and ventilation. A volume of fresh air is constantly received into the building thru large basement windows on the east, west, and north. This is heated by steam pipes, and passed thru registers into the wings, requiring for this purpose an annual consumption of seventy-five tons of coal. In the four corners of the center are large registers over brick under-passages, which passages communicate with chimneys in the north. These chimneys are heated by gas and steam pipes, so that the foul air is drawn down from the center floor. Thus good ventilation is secured, and a uniform heat thruout the building, the third floor being of the same temperature as that of the floors below, making it wholesome alike for men and books, and obviating the necessity of a one-story building, as advocated at the London Conference.

UNIVERSITY OF CALIFORNIA LIBRARY

Tho described briefly, this very distinctive building is clearly pictured in this quotation from Bulletin no. 2, of the University of California Library.

It is divided into two almost separate buildings; the front, rectangular in form, containing the reading rooms, committee room and book storerooms, together with the art gallery, has a frontage of 87 feet 6 inches by a depth of 38 feet. To the rear of this are the two main entrances and lobbies of the building, extending outward as wings some 20 feet each side, having a uniform depth of 12 feet 6 inches.

To the rear of the front or rectangular portion extends the library or book room, a rotunda 69 feet in diameter, with a depth of 54 feet, and a height to the lantern inside of 57 feet.

The front building is in three stories; the basement or ground floor containing two rooms for consultation and general work, rooms for book storage, and the common passage. The cellarage under the library is devoted to coal, and boiler rooms; whilst the basements of the entrances or wings are arranged as toilet rooms, having water-closets, urinals, and washbasins for the general use of the house, two circular flights of steps descending from the main lobbies. These internal arrangements are connected with the upper floor by a main staircase, 4 feet 8 inches wide, which connects the library work rooms direct.

The first floor contains three reading rooms, connecting with the library proper; the two wing-entrances with the lobbies and vestibules; and the first floor of the library. Opening from the vestibule of one of the entrances is the principal staircase to the art gallery. In the lobbies are placed drinking fountains.

The second floor contains the art gallery, which for architectural effect is divided into three separate compartments by arches supported upon grouped Gothic columns. The ceiling of the compartments of the gallery are domed upward to a height of 30 feet, and surmounted by skylights, by which the gallery is principally lighted.

A double door 6 feet wide opens from the art gallery center room out upon a balcony into the library, from which a complete view of the rotunda with its galleries and dome can be obtained.

Above the central gallery and in the main tower of front facade is a room devoted to art curiosities and antique collections. Adjoining this center tower room is the tank of 900 gallons capacity for supplying the waterworks in the basement and feeding the hot water boiler.

The rotunda of the book room or library contains three floors for the accommodation of the bookcases; the ground floor, and two open galleries which extend around the entire circuit of the library. The galleries are connected together and with the ground floor by four circular staircases of iron. The library is divided on each tier into twenty recesses for bookcases, each recess having one case 9 feet long, and one case 12 feet long, all converging to a central point, from which a view of all the recesses can be had, together with the persons occupying them. This gives accommodation for about 9000 volumes.

The reading rooms and rooms for books of reference are separated from the library and from each other by sliding doors ten feet wide, which, when thrown open, connect them all as a whole with the library.

All the interior finish of the building is in the best style of modern Gothic; the principal rooms, staircases, and art gallery being wainscoted with heavy panelled wainscoting finished in the natural wood. An elevator, with a lifting power of two tons, runs from the basement floor to the art gallery, serving to convey books, pictures, statuary, and art collections to the stories above.

The building is heated by the most improved hot water system, the boilers being in the cellar under the library; and particular attention has been paid to the ventilation of the library and the other adjoining rooms. Each tier of floors in the rotunda of the library has twelve flues, which are built in the outside walls. The fresh air is brought in from outside thru one large airduct, and distributed to six different points, which are heated by the hot water coils in the basement.

The general design of the exterior is modern Gothic; the main facade being divided into two wing faces extending beyond

the main body, and a central projection, terminating in a lower, which rises to a height of 102 feet above the ground. The height of the main body, as also the main deck of the rotunda roof, is 57 feet, the lantern of dome rising some 19 feet still higher, and capped with a crown cresting of iron. No materials of an inflammable nature are used on the exterior of the building.

The frontage is provided with two niches for statuary; and an iron balcony and portico, extending all around base of tower, forms one of the principal features of the facade.

The materials used in the construction of the building are the best; the fronts being pressed face brick with artificial stone dressings. The main walls of the entire edifice are built of the best hard brick laid in cement mortar, and bonded together by heavy bond iron on all the stories, and where required. The upper portion of tower is built upon heavy compound wrought-iron girders; the walls being anchored to the girders by means of heavy rods and bolts, which are built in the walls the entire height; the plate and main frame of roof being then secured to the rods, thus securing the tower from any undue strain thru storms or earthquakes.

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PLANS FOR LIBRARY BUILDING OF UNIVERSITY OF PENNSYLVANIA *

Using the prevailing Gothic style, this building is distinctive because of its greenhouse-like roof intended to provide adequate light to the book-room, and its provision for a wide range of activities as recommended by outstanding librarians of the day.

A sketch of Talcott Williams who prepared this article for *The Library Journal* is in Volume III of this series, *The Library and Society*.

The University of Pennsylvania has been for years deficient both in the size of its library and in its management. This is the usual fate of American universities when mainly congeries of professional schools. Theological seminaries are thus far in this country the only professional schools whose collections of books, gathered for their own use, are worthy of consideration. The Library of the University of Pennsylvania consists of "over 40,000 bound volumes and considerably more than that number of unbound pamphlets." It ranks far below the collections of institutions less conspicuous and less useful. Its only regular income for the purchase of books, the Tobias Wagner fund, amounts to \$10,000, and from two to three hundred volumes a year are purchased by it—in 1887 224. The chief accessions to the library have been by small grants and from the presentation or purchase of various collections, usually the working library of some author or scholar—Stephen Colwell and Henry C. Carey in finance and sociology, Fairman Rogers in engineering, known as the Evans Rogers' Library, D. B. McCartee in sinology, Benjamin H. Brewster in law—presented as a memorial of Mr. George Biddle—and the library of Prof. F. A. Pott, of Halle. Librarians and investigators are only too well aware of the varying value of such collections and of the enormous waste involved in their purchase. But just as it is easy to

* This paper originally appeared in *The Philadelphia Press* of July 1, 1888. It has been rewritten, altered, and corrected in many particulars which required a different treatment in a daily newspaper.

raise money for a new telescope and observatory—today less needed than any instrument of scientific research—so it is easier to obtain contributions to purchase some well-known scholar's collection, whose usefulness disappeared with his death, than to raise the same amount to be expended under the trained direction of a librarian guided by the advice of experts. A circular issued in June, 1885, and repeated in June, 1886, has brought to the library "58,000 pieces of reading-matter," whose value librarians can best appreciate and which may suggest to other college librarians the possibility of adding without expense to their collections on a side upon which the library of a college in a country town is always most deficient, the pamphlets, reports, and minor volumes invaluable to the investigator and valueless to the rest of the world. The present librarian, Mr. Gregory B. Keen, has wisely followed the example of his predecessor, James G. Barnwell, now librarian of the Philadelphia Library and devoted a large portion of the resources of the library to a card catalog—the first in its history. This work, January 31, 1888, had cataloged 20,328 volumes on 71,656 cards, the proportion of cards to volumes being unusually large. The Amherst or Dewey classification is employed in the library.*

The report of the Provost of the University, Dr. William Pepper, called attention in 1885 to the need of a library building "on account of the many thousands of volumes which are at present stored away in places almost inaccessible and for the far larger number of books which will be generously given as soon as suitable accommodation is provided." This still remains true and the Biddle memorial law library of 4200 volumes has been in storage since it was presented. An attempt to combine in one building a library and alumni hall failed and the better determination was taken to build the library building alone. The gift of \$50,000 from Joseph Wharton, in June, 1887, succeeded by gifts from others reaching \$175,000, made it possible to prepare the plans for a new building, which will be begun this season. These plans have been prepared by Mr. Frank Furness, of the firm of Furness and Evans, of Philadelphia. They are not only the fruits of his own professional study of the problem presented by a library building, but embody the criticism and suggestion of Mr. Justin Winsor, of Harvard,

* It has been altered in one particular by bringing Philology 400 just before Literature 800, a change which has much to recommend it in the use of books.

and Mr. Melville Dewey, of Columbia, two librarians whose ability to speak as experts upon library administration every librarian will concede. I had the good fortune to be present at their prolonged conference with Mr. Furness and the Trustee Committee on Literature and Art which has charge of the library, possibly as representing the one man usually absent in such councils—the man who reads. Pretty much everything in this article which librarians will approve may be safely credited to what I heard from Mr. Winsor and Mr. Dewey in this conference in regard to library buildings. The rest is my own. The instances are only too rare in which committees charged with this duty have had the wisdom to seek expert advice. Few library buildings represent the same patient effort to perfect its plans as this. As every student knows, more than one great collection has been as hopelessly handicapped for lack of this care as an equatorial telescope mounted under a stationary dome. The new building will stand on Thirty-fourth Street, just east of the University buildings, the porch and tower in the design coming on the Locust Street line, so that it will be a conspicuous object coming down or east on Locust Street. The book-stack to the right or south will be 96 by 110, and the main building 140 by 80, while the tower will be 95 feet high.

A model library building will discharge three offices—it will store the books in absolute safety from fire in an accessible manner, with light, air, and an average temperature, and with provision for indefinite expansion; it will provide the space and room for rendering the books accessible to readers by adequate library administration, and lastly, it will furnish all classes of readers with the accommodations they demand, varying from the five minutes of the casual magazine reader to the years of silent investigation by the historian. Nearly every library building ever constructed fails in all these particulars; the rare few built with some comprehension of the needs of the modern library discharge one or two of these three needs. It is scarcely an exaggeration to say that no single library building now standing discharges all three. The Buffalo Library building, which now meets all of them, is, from its site, cramped in the matter of expansion to the broad limits certain to be reached in the next fifty years by collections of books.

In the "Librarian's Dream," read by Mr. Cutter at the Buffalo meeting of the A.L.A., in 1883, its books were supposed before another century to be garnered in sunless and airless

tunnels down which for all time to come the stream of literature was expected to run as the Alph did,

“Through caverns measureless to man,
Down to a sunless sea.”

This may be an admirable way to store books; but it is a poor way to place them for use. The enormously costly library building which the government is erecting in Washington will, in all probability, be found to miss meeting all these requirements. Admirable as the arrangements of the new Boston Public Library building are, its plan fails to discriminate between different classes of readers, and I think it will be found in the sure growth of its administrative features that too little space has been given to these. As for the older library buildings, there is not one which is not known to be wrong. The three in this city, on Christian, Juniper, and Tenth Streets, are each in their several perverse and separate ways samples of what a library should not be.

Yet a library is nothing but a building giving storage and terminal facilities to literature. If its technical requirements are borne in mind its success can be made as certain as the working of an elevator or the building of a coal dump. Of course if you go astray—the Hebrew prophet would justly have used a stronger word—after the pride of life in architectural display or are seduced by the Pharisaism of a display of books under a groined ceiling, or are even led away by the Librarian Sad-ducee, who knows everything about a library but the resurrection of its books in the reader's hands, you will reach the customary library building. The University's new library building will doubtless be found when that wonderful and complicated machine, the modern library, is put in it to have its drawbacks. Did larger means permit, for instance, more room should be given to seminary work, and yet the space devoted to this purpose is larger than in any college library of whose plan I know. But taken as a whole, the new building goes nearer to meeting all three requirements considered with reference to a university than any library in or out of this country whose plans have been published in accessible shape. Within the limits of expenditure, set not by the needs of the University but by the limits of contributions, still, all things considered, liberal, of \$175,000, the building is a marvellously successful attempt to house a great library. It will not only be the

most economical library building ever constructed per volume, but it will also be—and I speak from the standpoint of that unconsidered man in library economy, the man who uses books as working tools—by far the best and most convenient.

A well-housed library is like a hermit-crab, its soft and perishable tail of books hid in a fireproof shell, and its "business-end" turned in complete and accessible freedom to the public. Looking at the proposed library building in the view of the west front, this fire-proof shell is seen to the right, while the administrative part of the library is in the remaining portion of the building. This greenhouse-looking shed will hold 455,616 volumes, eight volumes to the running foot—or by adding middle cases, 512,064. The first total is nine times the number of volumes in the library of the University now, and the last ten times. Four times the present library, or 229,824, can be accommodated without leaving the first floor. Packed to its extreme no book will be over three stories from the delivery counter, the back of every book can be read without artificial light, and access to free air along the entire length of the book-stack at two angles in the roof ought to make it possible to keep the temperature below the point which, in most libraries, ruins book bindings. How much this is to accomplish only librarians know, and they rarely find out.

The advantages in the present plan are, first, its height. The stack is only three stories high. The Harvard stack is five, the Boston six, and the Washington plan as many. Even three stories involves much stair-climbing under conditions sadly liable to strain the muscular system for all time to come. The plan admits of eight staircases, one to each bay, whose size is indicated by the buttresses in the perspective view. This ought to avoid the tedious work of going around three sides of a square to reach a book directly over or under you. Each bay will hold 64,008 volumes, the shelves running along the side-walls, in the spaces left blank in the main section and in those shelved. The entire roof from wall to wall is glass, and the space below the roof-trees is ceiled with a glass diffuser so as to provide air-chambers over all the building, save the short slope on each side above the wall. This slope is intended to light the right and left divisions of the stack 24 feet thru, and light wells carry light to the central stack of 27 feet. This ought to leave the ends of the stacks light enough to read any text or trace any diagram, and the center of any stack with light to read even

the pale color on a white-backed book. I hesitate to say that the light will get in, for I have had a long and weary experience with the perversity of light in a library. But I have great hope from the happy thots of lighting the ends of the stacks by the slope just above the wall. This at least insures a north and south light at the end of each stack from a skylight opening, and there is no place for work with books like a little table at the end of a stack which holds your subject. The floors of the buildings are of translucent glass, instead of the iron cross-bar floor usually employed and which lets dirt thru. The first criticism of this plan which will occur to most is that the shelf-room on the side-walls ought to have been sacrificed to windows, but in the technical problem presented by the amount of light which will be given by the sloping glass—an angle which gets far more sun than a flat or upright skylight—I am inclined to be guided by the opinion of an architect to whom fenestration is a daily study rather than by the impression of a layman. The cellar under the stack is lighted and can be used for map and file room, the cellar under the main building affording space for heating apparatus and an electric light plant. The construction glass and iron is fireproof and the stack is cut off from the main building by fireproof doors. The plan of the stack admits of indefinite expansion to the south by extending the stacks a bay at a time, the end wall being moved out on jack-screws. The cost of adding a single bay, when only roof, sides, and shelving have to be estimated for, will not be over thirty cents a volume for the additional space. I need not enlarge upon the priceless value in a library of what I might call a high coefficient of expansion.

Like the hermit-crab, to return to my metaphor, a library turns two claws to the outer world, one outer and the other inner, one part of the machinery distributing books to readers, and the other cataloging them for readers, while its building should provide room and rooms for reading. No one of these needs has usually enough space provided for it. It would be hard to exaggerate either the cramped and inconvenient quarters in which the administrative work of a library is generally done or the discomfort in which those who use it sit.

I know a distinguished historian who, adapting Dean Swift's preventive for railroad accidents, avers that no improvement will ever come in the accommodation for readers until the chief librarian of every library is chained down in the draughts, the

dim light, and the disturbance in which readers must sit. But my own experience is that the chief librarian and his staff, like hospitable hosts, usually leave the better part to be chosen by their visitors, and that "behind" is as woefully deficient in all the needs and comforts of life in the American library as it is in the American theater. I mind me of Mr. Spofford sitting in a narrow corner ruling the largest library in the country, and recording copyrights in a space in which no banker's clerk would do his work, yet somehow discharging multifarious duties in an avalanche of books—*caecoque eximit acervo*. I think of the library school organized at Columbia in a library building in which the architect had provided everything but a librarian's office, a steamer built without pilot-house or room for the man at the wheel. I remember catalogers, a slip in whose work leaves a book lost, its value gone, writing their cards in the noisy intervals of distributing books. One such I see before me whose simple and lofty nature tells how high this daily contact with books may lead the receptive soul, who for years has done all his delicate work in the thorofare of the large library in which he works.

These things ought not to be. The administrative portion of a large library ought to combine supervision and seclusion for the chief librarian, quiet for the catalogers—and in this I cover the entire bibliographical and indexing work of a library staff—with independent outer entrance and an independent access to the stack. For the distribution desk there should be separation between the work of dealing with the reader who stays and the one who takes his book away.

The University Library building proposes to do all this for a library of 500,000 volumes. Its architect believes for one of 1,000,000. Library management expands so fast, so far, and for the readers so beneficently, that I doubt myself whether there is in the building space at the utmost to run and manage on modern lines a library of over 500,000 volumes. Yet there is in this building one-third of the space given to readers in the British Museum, with 1,000,000 volumes and all classes of readers in one room. Even the new library building designed by McKim, Mead and White for the Boston Public Library, which is to cost \$1,175,000, has only twice the space for catalogers and less conveniently arranged, and for its reading room a little less than twice the space provided in this plan and by no means as well adapted to the varying wants of those who seek a library. In

the University Library the main floor will have in the corner a librarian's office 12 x 19, and on one side 6 catalogers' rooms each 10 x 16, with a separate outer entrance and direct approach to the stack. The distributing space, 19 x 40, runs across the end of the reading room, which fills the rest of this floor and communicates, as will be seen, with the anteroom, so that a part of the distribution work can go on there. The card catalog, which is after all the *crux* of library management in housing, holding, and handling, is expected to stand in the partition—not wall—which separates catalogers from readers. A simple mechanical device is expected to make the same cards and drawers accessible both to the public and the library staff. Whether this will work, only experience can determine. Of course, if it succeeds, the serious expense of a double card catalog, "official" and "public," is avoided, and other advantages are secured upon which I need not enlarge. If the plan does not prove practicable, and, aside from other drawbacks, it brings the cataloger somewhat too near the inevitable stir of the reading room, there is still room on the opposite wall for another card catalog. The space set apart will hold 1,000,000 cards, postal-card size, three drawers deep, and the space opposite as much more. This is more than sufficient to meet any probable growth. At the end of the row of catalogers' stalls is a room 16 x 18, which opens to the librarian's entrance of the building. Here books are to be delivered and unpacked and pass either to the bindery in the cellar below or thru the hands of the catalogers on their way to their appointed rest and resurrection in the stack. It is some saving, and a library is a business in which space and time furnish the real margin of profit, that a book entering passes without crossing its path, across the cataloger's desk, into the stack, and out again at the distributing desk. The cellar below, also, its bindery, the packing room, and these stalls furnish also the space in which university publications can be stored and handled—for a properly conducted university library is the center of a system of exchanges and of the publications of the University.

The University Library building distinguishes between these classes. At the entrance about the staircase there is a "conversation-room," 19 x 26, with access to a corner of a distribution desk, in which the noisier work of dealing out books can go on and which shuts off the noise of entrance, cloak room, etc., from the main reading room. This at one end goes to the top of the

building and is lit by a skylight and at the other has light from the sloping windows apparent in the view. It is divided by pillars into a reading room open to all the casual world, 40 x 48, and a reading room for the student and book-worker, 40 x 54. The collection of books classified by courses of study and set out ready for the use of the student in the Harvard Library reaches 8000 volumes. These are independent of the 26 special libraries in that magnificently librated institution which constitute the working plant of various departments and are kept in laboratory, recitation room, or museum. The alcoves are intended to hold the working library to which the professor directs pupils in graduate or undergraduate study, and, being devoted each to a subject, offer a suitable and adequate opportunity publicly to connect the names of contributors to the library with its collections in special fields of research without interfering with the general stack arrangement. The capacity of these alcoves reaches 16,000 volumes, and each is to all intents and purposes a separate room with a strong light in which a professor can gather eight or ten students without disturbing the rest of the room. This disposes of three classes, casual, topic-searcher, and student. An alcove 12 x 18 gives room for the special workers, who for a day, a week, or a month are making the library their working-home. The book-stack is so well lighted that desk-room can be placed there for professors and special investigators.

The reader, the most important factor in library management, enters from the main entrance porch. Investigators know to their cost how little perception is shown in most library reading room plans of the difference between readers. Speech is a crime and silence the highest of virtues where books are being consulted, yet at the distributing desk some speech is inevitable, and this is usually brought into and made a part of the only room provided for the reader. Still more, readers differ. There is the casual reader who comes in for five minutes to see a magazine; students—in a college library—who come often by groups and with an instructor to consult the works on a special subject; the reader who is hastily looking up on a topic at a moment's notice or refreshing his memory by running over a pile of related works, a job of two or three hours, and the investigator who has come for a single day's work and wants quiet and space for that day. Such a man's time is often precious, and if he is an enthusiast he may easily have been planning for weeks to put in that day and make the most of it. Lastly, there are the three

classes of special investigators—the historian, bibliographer and what not, who gives days to work over the same books; the professor, who, let us charitably hope, is always keeping himself up with his subject by the aid of the library, and the students of his “seminary,” who are learning under his lead to use books as tools. The customary plan is to put all these readers in the same place to the loss of all—with the exception of the professor and the seminary, both of which have special privileges in all colleges. The space and appliances given these at Johns Hopkins, for instance, have much to do with the remarkable success attained there in historical and political studies.

The three remaining stories provide for the other classes, and a lift carries books to every floor from the distributing desk. These stories hold six professors’ rooms, 12 x 14, which can be used separately or thrown together by threes for seminary purposes, a room for the Assyrian collection, 19 x 40, which will eventually be the home of a seminary for Semitic study—the largest special provision of this sort yet made in this country—and a lecture room, 40 x 34, of two stories, occupying the curved end of the roof and giving facilities under the same roof as the library which every instructor will appreciate.

Last, I come to what is too often considered first, the outer aspect of the building. The French-Gothic style in which Mr. Furness has worked out his plans lends itself to the irregular forms such an edifice must have. It will be constructed with a basement of Nova Scotia red sand-stone, the rest of the building in brick with terra-cotta mouldings, and with a free use of copper in the stack and elsewhere. This promises a warm, rich, red effect which will be a happy relief to the eye from the hopeless green of the dice-blocked serpentine with which Philadelphia is cursed. The window courses, gargoyles, of which a bold row runs about the curved roof, crochets, and the crenellation of the tower will all be in terra-cotta and offer room for the effective use of a rich and beautiful but neglected material. The porch and tower will be the striking feature of the building as seen from the west, standing on the line of Locust Street, and happily unite to give the edifice the collegiate air a library should have. The perverse desire to have a library look like something else which it is not will doubtless suggest a spire on the tower; but this temptation has been resisted. The tower is needed for the stairs, to carry off the window and carry up the chimney-stack, and it is needed for nothing else, save as its top holds a janitor’s dwelling.

LIBRARY OF COLUMBIA UNIVERSITY

An editorial which presents the special features planned to accommodate the grouping of departmental libraries in the main building (1894) and making provision for advanced students. This building is now being supplemented with a larger and more modern structure.

The plans for the new library building of Columbia College, to be erected on the college's new site on Riverside Heights, have recently been made public. Ever since the removal of the college was decided upon, the trustees, and the committee on buildings and grounds in particular, have been considering the location and character of the buildings to be erected. After the requirements and preferences of the various schools, faculties, and departments had been ascertained and digested, they were turned over to a commission of eminent architects, assisted by engineers and landscape gardeners, which recommended a certain line of treatment for the property. The ground plan and general arrangement commended themselves to the trustees, who accepted them, and contracted with McKim, Mead and White, the architects, to design the library, or central building of the group that Columbia hopes eventually to rear. The library was designed by Charles F. McKim, and the completed plans were recently placed on exhibition at the college, with a plaster model of the proposed library, and with plans, elevations, and topographical maps showing the plans of several of the other buildings, and the contemplated arrangement of the grounds.

The new college site extends from 116th street, north to 120th street, and from Amsterdam avenue to the Boulevard, 1000 feet north and south by 800 feet east and west. The library is to crown this site, and to be the centre of what the college authorities expect to be the finest group of buildings possessed by any educational institution in America.

It is to occupy the crest of the hill, where stands the old Bloomingdale Asylum, and is to have what few of the fine buildings of New York possess, a spaciousness of approach on

all sides which will enable its beauty to be appreciated. No building or portion of a building will be nearer than 60 feet, and there will be a clear approach on every side. The library will be flanked on the east by the chapel, and on the west by the assembly-hall. It is the leading feature of the site, and gives the keynote to the architecture of the other buildings. In style it is purely classic, with a line of columns across the front, and a low dome somewhat similar to that of the Pantheon, and reminiscent of the administration building of the Columbian Exposition. The building will be perfectly symmetrical, a square in form, with retreating corners, and no rear or side entrances will mar its impressiveness. It is planned to be 200 feet square, and will consist of three stories and a dome, the summit of the latter being 130 feet from the ground.

Entering from 116th street, one will ascend by a great flight of steps 330 feet broad, to the first terrace, paved with stone, and then by successive flights to the portico of the library, at a distance of 205 feet from the street, the plan of this grand entrance being somewhat similar to that of the capitol at Washington. The front of the building will consist of a portico with ten Ionic columns, reached by a flight of steps. In front of the portico will be a statue of Columbia, and above the mouldings will appear an inscription and the donor's name—for it is hoped that the building may be a gift to the university. On the way up, steps will lead to the south quadrangles on the right and left, while open spaces will surround the library and give access to the buildings beyond and at the sides. Directly above the third, or highest floor, will run a series of horizontal mouldings, and a frieze on which will be inscribed the world's famous poets, authors, philosophers, scientists, musicians, and artists. The stories will each be 15 feet high in the clear, and this idea has been followed in all the plans exhibited, namely, of allowing seven and a half feet as the standard of a man's height with ample clearance space, so that by making a room 15 feet high, two sets of bookcases—the upper reached by a small gallery—are made available. For a book stack, $7\frac{1}{2}$ feet, thus giving easy access to the top shelves, has been taken as a standard; for studies, stack rooms, and small lecture rooms, 15 feet will be the height, while the ceilings of the large lecture rooms will be 30 feet from the floor. The building has been arranged to provide not only a place for books and readers, but to give accommodations for the executive and administrative offices of

the university, lecture rooms, seminarium rooms, studies, and offices for three of the university faculty. As new buildings are erected, and as the library expands, these offices and lecture rooms will be moved to other halls, and stacks for books placed in their stead. This is the ultimate object, and of course will not be necessary for many years. When it is necessary, however, the library will be ready to contain about 1,500,000 volumes, or more than twice the capacity of the Bodleian Library.

On either side of the grand entrance are the president's office, the business offices, and the university post-office. Thru a columned doorway one enters the general reading room, 75 feet square, and lighted by immense windows, 50 x 25, in the drum of the dome. It will accommodate about 225 persons, and is surrounded by a corridor, from which open on the left the rooms of the librarian and his staff, and at the northern end the law library, accommodating 125 students. Opening from one end of this room will be the study and office of the dean of the law school, and at the other end the study of other professors of the same faculty. The eastern portico of the first floor will be occupied by the Avery architectural library, and will be fitted up so as properly to house this magnificent collection. The Greek and Latin seminarium rooms near their respective collections will complete the arrangement of this floor.

Stairways at each of the four corners will lead to the second floor, where will be found in front the president's private office and trustees' room. From the gallery, which looks down on the reading room from a height of 30 feet, will open the stack rooms containing the departmental libraries. In these stack rooms the shelves will not extend to the outer walls, but between the shelves and the walls a new feature in college library building is to be introduced in the construction of seminariums, small rooms on the mezzanine floors, which will receive natural light. These will be separated one from another, by sliding doors, and the whole number on one side of the building may thus be thrown into one long hall or into halls of different sizes. These seminariums are for the use of advanced or special students and the professors—readers who will have free access to the book shelves—and they may be used either as individual studies or as class or lecture rooms.

The third floor will contain the dean's and secretary's offices, the faculty rooms of the university faculties of political science and philosophy, and a number of lecture rooms and studies. In

the basement will be the supply and repair rooms for the library, bath, and toilet rooms, and large storage rooms. The main point involved in the planning of the library has been to secure a building adequately suited for the purpose, and the treatment has been the arrangement of the books in a circle of which the reader is the center.

President Low, in a report on the subject, outlines the general wishes of the college authorities in regard to the new university buildings, expresses the hope that the buildings to be erected will come to the college, without exception, by gift, and gives a list of the structures needed. He estimates the cost of the library building as \$750,000; that of the other buildings as from \$100,000 to \$300,000.

BRIEF DESCRIPTION OF STATE HISTORICAL LIBRARY BUILDING AT MADISON, WISCONSIN

The construction of a building to house together the State Historical Library and the State University Library presented a situation which was so excellently handled as to call forth the characterization by Dr. Putnam of "beautiful . . . dignified, and efficient to its purpose to a degree rarely exhibited in any building for library uses." It provides in a modern fashion for "seminaries" and individual studies. This description is taken from a pamphlet issued by the Wisconsin Historical Society.

The building was erected by the State (1895-1900) "for the use of the State Historical Society of Wisconsin, and such other libraries and collections" as might be invited thereto by the said Society. It occupies a plot of ground 264 feet square fronting on State, Park, and Langdon streets, deeded to the State for this purpose by the regents of the University of Wisconsin.

Design and Cost. The building was designed by George B. Ferry and Alfred C. Clas of Milwaukee, and is constructed of Bedford (Indiana) limestone. It is of the Ionic order, in the renaissance style, and with its equipment cost, as it stands, about \$610,000, appropriations therefore being provided by the generosity of the state legislatures of 1895, 1897, and 1899. The contracts were, however, chiefly let in 1895, at a time when prices were unusually low; it is probable that building and equipment could not today be replaced for a million dollars.

The form of construction is what architects style "fireproof," being primarily a steel frame anchored in solid stone walls; floors are hollow tile, and walls either of the same material or of metal lath and adamant plaster. Exceptional administrative care is taken also to prevent fire—there are in the building neither furnaces nor grates, it being heated by steam furnished from the University's central heating plant, with which it is connected by a tunnel. There are about 2,000 electric lamps; but being laid in metal conduits, wires are unexposed.

The building is administered by the State Historical Society as trustee of the State; but in consideration of the fact that the library and seminaries of the University are also housed herein, and that a large percentage of the users are members of the University, the cost of maintenance (exclusive of salaries of the respective library staffs) is divided equally between the two institutions. In addition to the State Historical Library (about 145,000 volumes and 140,000 pamphlets), and the Library of the University of Wisconsin (115,000 volumes and 35,000 pamphlets), there is also located here the Library of the Wisconsin Academy of Science, Arts, and Letters (7,000 volumes), making a total of over 440,000 books and pamphlets at present within the building. Both of the two principal libraries are now having a rapid growth, and these figures will soon be distanced.

In the purchase of books, the libraries sharply differentiate—the State Historical Library confining its acquisitions to American and British history and biography, religious history, general geography and travels, Shakespeariana, maps, manuscripts, general periodicals, newspaper files and public documents (American, Canadian, and British); while the University Library limits its purchases to foreign history (except the British Empire), literature, philosophy, philology, sociology, science, and the useful and fine arts. Thus avoiding duplication, it is sought, so far as practicable with the resources at hand, to cover the entire field of knowledge.

Altho the administrative departments of the two libraries were at the outset provided for, but one of the two proposed bookstack wings (the southern) has thus far been completed; the northern wing has yet to be constructed. The normal book storage capacity of the building was intended to be approximately 413,000 volumes, when all shelving was occupied. The building is now filled to a far greater extent than was supposed possible at the outset. The proposed new stack wing would probably house 225,000 additional volumes. The building would then have about sixteen miles of shelving, with a capacity of possibly something over 670,000 volumes. The plans provide, also, for an ultimate transverse wing along Park street, connecting the two book-stack wings.

The basement is occupied by the ventilating and plumbing apparatus, electric motors, unpacking and storage rooms, and the State Historical Library's famous collection of newspaper

files (which is second only in extent to that of the Library of Congress, at Washington).

The first (entrance) floor contains at the south end the State Historical Library's departments of public documents, newspaper files (consultation room), maps and manuscripts (including the widely-known Draper and Wisconsin collections), and patent office reports (American, Canadian, Australian, and British). At the north end are the seminaries of the University departments of history, economics, political science, and mathematics. In the central portion (west side) will be found cloak and toilet rooms for men (south) and women (north). An electric passenger elevator, at the south end, connects all floors.

Marble work. All of the marble used in the building was imported from Italy. That principally in use, for wainscoting, stair rails, bases, facings, etc., is the so-called English pencil-veined white; treads, risers, and landings are of the blue-veined variety; the panels on both sides of stair railing are of Paonnazzo.

The pavements of the public corridors are of marble mosaic. The devices seen upon the first floor pavement in the main corridor, represent some of the "marks" used by early printers to individualize and ornament the title-pages of their books: England being represented by the mark of William Caxton, 1489; Germany by that of Melchior Lotter, 1491-1536; Venice by that of Aldus Manutius, 1502; France by that of Jehan Frellon, 1540-50; Holland by the Elziver mark, 1620; while modern America is represented by the celebrated mark of the Riverside Press (Cambridge, Mass.).

At the south end of the second floor are the administrative offices of the State Historical Library, and at the north those of the University Library; lying between them are the great reading room (seating 240 persons, with some 5,000 general reference books upon the walls), together with the delivery room (with the public card catalog of the libraries) and the room for bound periodicals (seating about 40 persons). The dark red furniture of these rooms is constructed of mahogany.

There are two delivery counters—the northern serving the University Library, the southern the State Historical Library. Thru the gate in the latter, access is had to the book-stack wing in the rear. Here are six floors of enameled rolled-steel stacks, each floor having a capacity of about 42,000 volumes. The

several floors are connected by an automatic electric freight elevator, also by a book lift of similar mechanism.

At the south end of the third floor are the State Historical Library's lecture hall, the office of the Wisconsin Academy of Science, Arts, and Letters, and several administrative rooms connected with the Historical Library; at the north end are the seminaries of the University departments of German, Latin, Greek, French, English, philosophy, and education. Most of these seminaries contain special libraries of much value.

A visitor's balcony, overlooking the great reading room, lies between. Back of the brass railing is the genealogical department of the State Historical Library and the art departments of both libraries. Like that in the reading room below, the red furniture in the balcony is of mahogany.

The fourth floor is devoted to the Museum of the State Historical Society.

CLARK UNIVERSITY LIBRARY BUILDING

Practical requirements of research workers seem to have been allowed to control conditions in this building to a degree unusual in college libraries, which are so often bound by conformity to the rest of the institution. Special attempts to secure cleanliness and quiet are here illustrated, and it is perhaps significant that the librarian was given a very free hand in the planning.

Mr. Louis N. Wilson was born in Yorkshire, England, in 1857, and came to the United States in 1871. He received an honorary A.B. from Clark University, and LL.B. from Tufts College. His library experience was as librarian of Clark University from 1889-1929. He is author of an annual *Bibliography of Child Study* 1902-1907 and *G. Stanley Hall*, a sketch, 1914.

When Mr. Jonas Gilman Clark, the founder of Clark University, Worcester, Mass., died in May, 1900, he left the sum of \$150,000 to erect, equip and maintain a building for library purposes on a designated corner of the university grounds. In addition to this sum he left about \$500,000 as a permanent endowment "for the support and maintenance" of a library. In founding the university in 1887, he had already given the sum of \$100,000 to the library, so that the present endowment amounts to about \$600,000, the income of which is available for all library purposes. When the terms of Mr. Clark's will were made public, President G. Stanley Hall requested the librarian to prepare rough sketches of the floor plans of such a building as he considered essential to the growing needs of the university. At a meeting of the board of trustees in July following, these sketches were laid before the board and they voted that the librarian proceed to erect and equip such a building as he had outlined, leaving all details in his hands and attaching but one condition, that the total cost for building and equipment should not exceed the sum of \$125,000, as they desired to invest the other \$25,000 as a fund from the income of which the building should be

kept in proper repair. In September, 1901, Messrs. Frost, Briggs and Chamberlain, of Worcester, were given the commission to prepare the plans, and the contract for the building was placed with the Norcross Brothers Company in March, 1902. The aim has been to erect a building suited to the needs of the university. In round figures the items making up the total cost were as follows:

Architects, preliminary plans, surveys, and preparing the site	\$6,000
Excavations and foundations	4,000
Building contract including many changes during course of construction	97,000
Heating apparatus	8,000
Electric wiring and fixtures	3,000
Book cases and furniture	7,000
	<hr/>
	\$125,000

The building was completed July 1, 1903.

The library stands at the corner of Main and Downing streets, with a front entrance on Main street and two side entrances, one on Downing street and the other on the university campus. It is built of Harvard brick with Indiana limestone trimmings and is three stories high. The dimensions of the Main street front are 78 x 49 feet, and the wing extending along Downing street is 119 x 49 feet. It has a present shelving capacity of 100,000 volumes which can be doubled later without making any changes to the building. The design is a modern adaptation of the Gothic style, suggestive of many of the English university buildings. The treatment is simple, no attempt having been made at elaboration. The lighting is entirely by electricity, the windows are large, giving abundance of light in every room, the glass used being the best quality American plate. The construction is what is known as mill construction, the floors being made of four-inch plank resting upon iron beams. The walls are lined with hollow brick, there being no wooden furring.

On the first floor is the main corridor, with a cross corridor leading to lavatories on either side. The two front rooms are intended for special collections later on. Opposite the staircase leading to the second floor is the unpacking room, conveniently located near the Downing street entrance and connected with the cataloging rooms above by a booklift. Opposite the un-

packing room is the janitor's room, under the stair landing. The stack room in the rear will hold about 75,000 volumes. It is 45 x 95 feet and 12 feet high. The electric fan, for ventilating purposes, is located in one corner of this room.

At the head of the stairs on the second floor is the attendant's desk, so situated that it commands a full view of the main library and the reference room, thus ensuring economy of administration. The cataloging room, immediately back of the attendant's desk, communicates with the main library thru an archway provided with sliding doors. On one side of the reference room is the president's room, 25 x 45 feet, which will eventually contain the private collection bequeathed to the university by the founder, containing about 5000 volumes all in very handsome bindings. Opposite the president's room is the librarian's room, 16 x 25 feet, and the periodical room, 25 x 29 feet, where current numbers of periodicals are kept. One side of this room contains a case for the periodicals. It is eight feet high and is partitioned off into box-like compartments, eight inches and ten inches wide respectively, giving accommodation for over 300 journals. The shelves are all movable and, like all the book shelves in the library, they are constructed with a narrow flange so that a shelf label card may be readily inserted and used along any part of the shelf, thus doing away with the ordinary shelf label holder so destructive to the bindings of books. At the end of the reference room, on the Main street front, is a large Gothic window fitted up with a platform and window-seat. The main library room on this floor has a shelving capacity of 30,000 volumes. It is divided into alcoves, 8 x 15 feet each, by means of double book cases running out into the room from the walls. Each alcove is provided with a table 2 x 8 feet. There are three open fireplaces on this floor; in the president's room, in the librarian's room, and in the main library.

On the third floor there is another library room 45 x 95 feet, arranged in alcoves like the one below, but, while the room on the second floor is 16 feet high, this one is 19 and is lighted by a skylight in the roof extending nearly the whole length of the room. The windows here are not so large as those on the lower floor. On the Main street front there is an art gallery, 45 x 75 feet and 23 feet high, which has been provided for the art collections of the founder, which will be deposited here

later. A passenger elevator well was provided but, for the present, it has been floored over and answers the purpose of a convenient cloak room on each floor.

The finish thru the building is of quartered oak stained a little darker than the so-called golden oak. The walls and ceilings are calcimined in plain tints.

In building a library as well as in administering one, it is astonishing to find how difficult it is to make any radical departure from conventional lines. So long as you are content to repeat what has been done before there is no difficulty; but when you undertake anything new, even if it is only in the matter of window or wall space, you find it very hard to enlist any sympathy lest the innovation should prove unsuccessful. So long as one is content to accept the stock on the market all goes well, but your judgment, or your sanity, is immediately questioned if you attempt any radical departure, and you find almost everybody too busy doing the usual thing to have time to undertake the unusual. The pressure brought to bear is so universal that many a good idea is strangled at birth, and I sometimes seriously question whether a season of great prosperity is ever productive of many new departures. We were, therefore, particularly fortunate here in having the cordial support of the board and in having the most eminent builder in the United States as our mentor and guide.

The cost of a building is usually estimated by the cubic feet of contents. Here we have 609,000 cubic feet which, divided into the total cost of \$125,000, makes 20½ cents per cubic foot for building and equipment. As libraries go, and considering the excellent appointments of this building, the cost is exceptionally low.

The greatest enemy of a library is dust, so it is very important that nothing should be introduced into a library building of this character, unless it has a distinct bearing upon the use of books. For this reason no seminary rooms have been provided, because it is better to send the books to the class rooms than to bring the classes to the books. It is the result of experience that you cannot use a very large number of books at one time in class work, and the amount of confusion introduced into a library by bringing classes within its walls is deplored in many of the larger university libraries. The constant coming and going of numbers of men at stated hours has a tendency to

disturb those who are studying in the library, and the same results may be equally well obtained by taking a reasonable number of books into the class room, with a decided benefit to the individual workers in the library. It has been thot wise, also, to provide a special library and study room for the undergraduates in the main building, drawing upon this library for such books as are needed for class work from term to term, thus ensuring perfect quiet and ideal conditions for research work in this building.

In order further to minimize dust and dirt, the heating apparatus was placed in the main building where we have installed a boiler of large capacity and a hot water heating system. The hot water is sent over here in pipes laid underground. Whether we have gained enough in cleanliness to compensate for the loss of heat in cold weather is something which cannot yet be determined. But the heating and ventilating of such a building is a serious problem and we can only hope that time and a closer acquaintance with the system we have adopted may dispel our present doubts.

Every book in the building is accessible to the readers, and, while the library is spending over \$10,000 a year for books, it is administered by the librarian and two assistants. The question of access to the shelves has never been debated here because, from the foundation of the university, we have assumed that in order to make the books of the greatest service and reduce the cost of administration, every part of the library must be freely accessible.

NEW LIBRARY BUILDING OF MT. HOLYOKE COLLEGE

The beginning of the twentieth century saw a number of new college buildings, but perhaps none exemplifies more perfectly than this the successful harmony of architectural fitness and economical usefulness. Notice the appearance of a browsing room called a Library of the Masters. Old world charm and quiet, new world light, air and space all prevail. This account given at the Narragansett Pier American Library Association Conference, needs no plates or pictures to illustrate it.

Miss Bertha E. Blakely was born at Campton, New Hampshire, in 1870. She received her B.A. from Mt. Holyoke and her professional training from the New York State Library School. After two years as librarian of the New Jersey State Normal School, Trenton, she returned to Mt. Holyoke as assistant librarian, and since 1901 has been its librarian.

Mount Holyoke College is in a New England village (South Hadley) in the Connecticut valley in a landscape which makes a charming setting for a college. There is plenty of space, so that each building has the dignity of broad lawns and no lack of sunlight and air.

The library is the central one of a group of three academic buildings facing the west on elm shaded College street. They are of reddish brown Longmeadow sandstone, and the exterior of the library, the latest of the three, was planned with especial reference to the architectural composition of the group. The building is Tudor Gothic in style. Its long line of 148 feet on the front is broken by a central gable in which is a large tracery window above the main entrance, on each side of which is a bay window with battlemented top. At the rear, the campus side, are three wings, the central one, the stack, being 54 feet long, while those on either side are but 22 feet.

The stone is rough except across the front entrance between the bay windows, where it is dressed. Broad granite steps lead to the recessed doorway, and within the vestibule are a few tiled steps leading to the main floor of the building.

This is a lofty hall extending from end to end and finished into the roof, the twelve wood trusses spanning the entire forty-four feet of the width and resting on carved gray stone corbels. There is a large tracery window of leaded glass at each end besides that in the center of the front, and on the sides are high mullioned windows also of leaded glass. The central portion of the great hall is divided by screens of oak and leaded glass nine feet high into a main corridor and a series of small rooms without destroying the architectural unity of the whole. The architecture was adapted from that of Westminster Hall, in London, and there is the same impression of spaciousness and of aspiration and of individuality in the designing of details. The angel figures on the ends of the hammer beams, every alternate one holding a book open to the spectator below, each other one a scroll, are copied, I think, from those in Westminster Hall.

The furniture was designed by the architect to harmonize with the style of the building, and the rather massive and entirely suitable tables and chairs add greatly to the effectiveness of the whole. In coloring there is the greatest possible harmony. The rich, dark brown of the woodwork is matched by the burlap on lower walls which are not covered by book-cases, and is relieved by the lighter brown of plastered walls above. The windows, while entirely of leaded glass, contain no color except in medallions near the tops. The designs in these are, in the end windows, seals of women's colleges, and in the others printers' marks of the fifteenth and sixteenth centuries—of Aldus, Elzevir, Plantin, Froben, Caxton and their contemporaries, with a few modern marks and famous book-plates. As one gazes up at these bookish reminders of other days and at the somewhat elaborate fretwork below the ceiling, including quatrefoil and trefoil designs, and sees the shadows cast by all on walls and ceiling, he might easily imagine himself in an old world Gothic structure except for the abundant sunlight and fresh air so prized by the modern student.

The entire north end of the building, including the wing separated from the rest of the room by arches and pillars, is

the general reading room. The walls up to the height of seven feet are covered with bookcases which are joined by others at right angles, forming nine alcoves six feet deep. The windows are above the cases except in the wing, where window seats are placed below the four low windows. The tables in this room will accommodate 130 readers, allowing to each a space of two and a half feet. Those in the center are arranged for ten, those at the sides for six readers. For economy of space we planned the wall cases on two sides of the room for the deep shelves for oversize books, instead of having a ledge all around above lower wide shelves. Very deep ones for folios placed on their sides are arranged between the pillars and side walls at the entrance to the wing. The seven or eight thousand volumes shelved in this room are those in all classes most needed by the majority of the students. Free access is allowed in the stack also.

The opposite, that is, the south end of the library, contains the periodical room, with extensive racks for current numbers; cupboards, which are standard bookcases with wooden doors, for back unbound numbers; and tables and chairs of the same pattern as those in the general reading room. The wing off this room, architecturally as much a part of it as the other wing is a part of the general reading room, is differentiated by special furnishings suitable for a private library—round tables, silk curtains, leather window cushions, easy chairs and foot-rests—and is our Library of the Masters. The idea of this was borrowed directly from Mr. Foster's Standard Library at Providence. Besides the special duplicate collection of world authors which gives the room its character, we have placed here a case with leaded glass doors in which are locked our rare book treasures.

The stack is in three stories, the middle one on a level with the main floor. It is the Art Metal Construction Company bracket stack, entirely of steel, with glass floors. Ten small tables at the ends of alternate stacks on the main floor allow space for students which is much appreciated. The estimated capacity is 87,000 volumes, which, supplemented by the shelving of the reading rooms, makes the total capacity of the present book rooms 100,000 volumes. Below the stack is the unpacking room, whence books are brought by the metal lift to the main floor.

Off the central corridor are four special study rooms, and on the floor above the stack, reached by a stairway from the main corridor and by the book lift in the stack, are ten more, which are assigned to different departments of instruction for the use of members of the faculty and students doing research work, but not for classes except in rare cases.

The card catalog, the logical center of a library, is in the main corridor between the general reading room and the delivery desk—which is in the center of the building between the main entrance and the stack—against the partition of the catalogers' room and across the corridor from the librarian's room. The latter is the room with the bay window at the left of the front entrance, opening into the general reading room, the corridor and a private office which, with the exception of the coat room off the vestibule, is the only one of the small rooms on this floor which has a ceiling.

There is a store room under the main corridor and catalogers' room, adjoining the stack, which can be used as a work room whenever it is needed. There is also a small newspaper room on this floor, and the four large corner rooms, on a level with the ground at the rear, a little below in front, are used at present as recitation rooms, but make provision for future growth of the library. The stack can also be extended if it becomes necessary.

One person at the delivery desk or in the catalogers' room furnishes sufficient attendance, except during crowded hours. The desk of the assistant librarian, who does a large part of the reference work, stands in the corner of the general reading room near the catalogers' room.

The floors deserve special mention, as they are somewhat unusual for this country. The material is asbestolith, a fireproof composition laid over concrete five or six inches thick. They are light gray with black borders and pattern decorations, and their chief advantage is their power of deadening sounds. All footsteps seem light upon them.

The building is heated, like the other college buildings, by steam from a central plant. The radiators are concealed in ducts in the wall behind the bookcases and under the floor, and thus offer no obstruction to the arrangement of cases or furniture. Fresh out-of-door air is brought over the heated pipes, so that the air admitted thru the registers above the bookcases

is pure as well as warm, and its circulation thru the building to the shafts between the stack and the main building has proved very satisfactory.

Plans for the building had been made long before there was any promise of money. The librarian drew the first rough floor plans from which, at the suggestion of the Library Bureau, an architect worked out full plans to be considered in detail and discussed with other librarians. When, in the fall of 1903, the trustees took the matter up and invited Mr. George F. Newton, of Boston, who had already planned Dwight Hall, the college art building, to make tentative plans, the requirements were quite clearly established, and his early plans were only slightly modified the next summer when \$100,000 had been secured and the work could be begun. Mr. Newton gave his attention to every suggestion made, and was most successful in incorporating each smallest feature which could be thot of for convenience in administration, without detracting from the architectural effect.

The contractors, Caspar Ranger and Son, of Holyoke, were also anxious to please thruout the entire course of the building, and were willing to incorporate afterthots. All the tables, desks, cabinets and periodical cases, and the wooden shelves were made in their workshops. The cost of the building, of fireproof construction except in the roof, with its furnishings, was \$112,000, and, exclusive of the lower floor, it will accommodate more than 300 readers. The college numbers 700 students and 100 members of the faculty. My rough estimate of the average number of readers seated at a time during the busier hours of each day is 115 or 125.

One year of occupancy has proved the new library well adapted to our needs. The abundant light and air, the large reading room for general students and secluded rooms for research are conducive to good work. The beautiful and harmonious interior produces the right atmosphere for scholars, an environment favorable to study and high thots, and is an inspiration to better administration.

UNIVERSITY OF TEXAS LIBRARY

Certain types of architecture have become distinctive of sections of the country, as the colonial in New England. One type frequently found in the Southwest and not elsewhere included in this volume is the Spanish, represented here by a University building designed by Cass Gilbert whose work as architect of the St. Louis and Detroit public libraries is well known. A sketch of Mr. Goodrich, who was then librarian and who furnished this description, will be found on page 377 of this volume.

The University of Texas Library is the first to be constructed of the buildings outlined in a new general campus plan with which its general shape is made to harmonize. That there should be a large reading room on the first floor front and a stack projection in the rear was thus predetermined. It was also determined that the space on the ground floor, under the reading room, should be partitioned off temporarily for the university administrative offices. The librarian had a free hand to make what he could of the rest. Thruout, his estimates and specifications were given due consideration.

The architect, Mr. Cass Gilbert, of New York, chose a modified Spanish Renaissance as the style best suited to the traditions of the southwest and the semi-arid climate of the region. The material is cream-white local limestone, roofed with dull red and buff tile. In that country the light is brilliant, the sky cloudless thru most of the year, and vegetation scanty except for a month or two in spring. Therefore broad white wall surfaces, a deep cornice and free use of color fit naturally into the surroundings. Grilles, balconies, lanterns, and doors are painted verdigris. A band of polychrome terra cotta surrounds each of the large windows, showing raised designs in dull reds, blues and greens. The medallions are white on Della Robbia blue, with green and buff borders. The elaborately designed soffit of the eight-foot cornice was painted under the

direction of Mr. Garnsey, the well-known decorator, using rich blues, dull reds and greens and buff for the background. The building is a remarkable architectural achievement.

The outside dimensions are: main portion 65 x 49, extension 80 x 63. As will be seen, the delivery room opens by one desk into the stair hall, for outside loans, by another into the reading room, for reserve loans and supervision. The stack and cataloging rooms are close at hand. Service stairs connecting the stack levels are located opposite the elevator. Below the cataloging room is one of the same size for work or seminar purposes, and below that another in the basement, where is the freight and staff entrance. The stack well is built for seven levels, holding some 200,000 volumes. Every alternate bay has the quarto base, so as to provide a ledge in each aisle. The General Fireproofing Company received the contract. The upper two levels are omitted for the present and the space used for four seminars. In a mezzanine above the cataloging room and office are two rooms of similar size. It is expected that more seminars will be built when the stack is enlarged. The space now occupied by the college offices will provide more seminars and several small special reading rooms.

Little expense was spared in construction and equipment. It is fireproof in the strictest accepted sense even to the roof. An elaborate damp proofing was carried thru the foundations. A ventilating and heating system is provided, with forced circulation of humidified air. For cleaning a Spencer turbine is installed in the basement. All materials and methods are of the best. The cost, complete with equipment and furniture, will probably total over \$280,000.

Certain unexpected complications at the state capitol compelled the University to defer the installation of the stack and elevator. Meanwhile the rooms in the main building occupied by the library were imperatively needed to relieve congestion. Accordingly in the midst of the appalling August heats part of the library was moved. A case was emptied, the books moved in handle boxes holding two shelves each, then the cases moved, set up on the reading room floor in the new building and so on. About seventy cases were so moved, containing some 40,000 volumes. Thirty-five of these were double-faced steel floor cases. All, including the boxes of books, were swung in thru a window by means of a derrick wagon. A considerable mass of

material was piled in a huge heap in the basement. Some cases could not well be moved, and the reading room would not hold them all anyway, so the English, history, bound magazines, and reference books were piled on the floor in a recitation room, while the old cases were shifted around and partitioning put up in the old reading room. Then they were moved back in the largest of the lecture rooms so formed, there to remain until the installation of the stack in the new building. It was thus necessary to run two libraries for the better part of the year. The whole proceeding was expensive, hard on the books and worse on the temper.

NEW HARVARD LIBRARY

A building to hold 2,000,000 volumes, stalls for individual study, and seminar rooms combine to make the Harry Elkins Widener Memorial Library show a forward step in college library architecture. Donald B. Gilchrist librarian of the University of Rochester says that it has the "greatest complexity in plan and the greatest refinement in architecture and technical details."

William Coolidge Lane, librarian of the Harvard library from 1898-1928, and librarian emeritus till his death in 1931, was born in Newton, Massachusetts, in 1859, and educated at Harvard. He was assistant librarian at Harvard, 1887-93; librarian, Boston Athenaeum, 1893-98. Mr. Lane served as president of the American Library Association, and of the Bibliographical Society of America, and for years was on the American Library Association Publishing Board. He is quoted as follows from *The Library Journal*.

Gore Hall is no more. The building to which scholars from all over the country have resorted, and which for seventy-five years has sheltered the richest and most widely used collection of scholars' books in America, is a thing of the past. Its cold, gray walls of Quincy granite, its four towers, and its Gothic pinnacles, at one time thot to form an architectural monument of surpassing beauty, at other times decried as a monstrosity, exist now only in the memory of the thousands who have frequented the college yard, in the records of the camera and on the seal of the city of Cambridge.

In its place, and in part on precisely the same spot, will rise the new Harry Elkins Widener Memorial Library, which will house the principal book collection of the university for all time to come, as well as the precious group of rare and wonderfully interesting books brought together by Mr. Widener in his few short years of book collecting.

The new building faces inward toward the college grounds, forming one side of a quadrangle, of which the other three

sides are occupied by university and Sever halls on left and right, and by the college chapel opposite, a quadrangle in which the former beauty of the trees has scarcely been impaired by the ravages of the leopard moth, so destructive in the college yard proper.

Stated in general terms, the building is a hollow square, about 250 x 200 feet on the outside, the inner courtyard being divided lengthwise by a central section devoted to the Widener collection, and leaving a light court on each side, about 110 x 28 feet.

The north side of the main building, facing on the college grounds, contains, on the second floor, the great reading room, 192 x 40 feet, while the three other sides are occupied for the most part by nine floors of book stack. The reading room, 43 feet high, extends to the roof, but above the book stack, on three sides of the building, in the upper story, are rooms for special collections and seminary use.

The approach to the building on the north side is by a massive flight of steps, extending across the greater part of the front, surmounted by a colonade of twelve columns, and masking a high basement story below. These steps lead to the principal entrance on what may be called the first floor (really the second), where one will enter a stately hall with stairs leading to the next story at its further end. The rooms on the right of this hall include a bookroom, to hold a comprehensive collection of standard books; a treasure room, in which all the rarest and most valuable books of the library will be properly shelved; offices for the director of the university library, and a room for the library council, opening out from the treasure room and serving as an adjunct to it. On the other side of the hall are administrative offices, including ample space for the catalog staff and the official union catalog; offices for the order department, the registrar and the librarian. These rooms connect by elevators and stairways with the rooms immediately below them in the basement floor, which are devoted to the shelf department, the collating room, and the office of the superintendent of the building.

On the other side of the building, in the basement floor, is a large reading room for students in elementary courses in history and economics. The entrance to the library on the south side, fronting the street, is also on the basement level, and direct

access is given thru the middle of the building to the stairs which lead to the entrance hall and to the reading room above. Toilet rooms, a dining room and kitchenette for the ladies of the staff, a boys' luncheon room, and rooms for the janitor are also to be found on this floor.

Passing up the main stairway from the entrance hall on the first floor, a platform halfway between this floor and the next gives access to the Widener Memorial Hall and a room beyond it, in which the Widener collection will be placed. Both these rooms will doubtless be rooms of great beauty and dignity.

Turning from this platform and passing up on either side by a second short flight of stairs, we come to a square hallway, which opens on the north directly into the great reading room, and on the east into the room for the public card catalog, with the delivery room just beyond it. At one side is a small reading room for Radcliffe students. The stairs and the lift at the back of the delivery room give access to the catalog department on the floor below and to the shelf department on the floor below that. The reading room is broken by a colonnade at each end, which reduces the apparent length of the room and partly cuts off two smaller rooms of lesser height at each end. One of these rooms, which will probably be used for reference books, connects directly with the delivery room, the other with another special reading room, and this again with the stack.

At the west of the hall on this floor are stairs leading to the upper story, passenger elevators and one or two small studies.

Turning now to the stack, it will be noticed that its distinguishing feature is a row of stalls along each outside wall, each stall being well lighted and having comfortable room for a table and chair. The stack thus becomes practically a working laboratory, with the best possible accommodation for individual and continuous work. These stalls are to be found on each floor of the stack, except the two lowest, and also on the south side.

The other striking characteristic of the library is the provision of a large number of small studies—rooms about 10 x 12 or 12 x 15 feet, for the private use of professors and others. On the southeast and southwest corners are groups of three such studies in five floors, and on the inner face of the south side of the library six more in five floors. The height of the stack stories being seven feet four inches, it was obviously desirable to make these studies somewhat higher. Their floor level

does not, therefore, correspond in all cases with the floors of the stack. They are separated from the stack, as shown in the plan, by a screen, but open into it at each end of the passageway. The object of this arrangement is that students and other visitors may have direct access to them from the street without passing thru the stack. A number of other studies are provided in other parts of the building, the total number being seventy-four.

The upper floor contains fourteen studies, nineteen rooms of different sizes which may be used for special libraries and for seminary rooms, and a photographing room. The library's collections of maps and manuscripts will be assigned space on this floor, and many of the special collections, such as the classical library and the Child Memorial Library, which are now in outside buildings.

An obvious criticism of the plan which will immediately occur to librarians is that the delivery room is not placed in its logical position—the center of the building, with direct access on the shortest lines to the stack; but it was desired to reserve this place for the Widener books and it should be remembered that in a college library the position of the delivery room, with respect to the stack, is of far less importance than it would be in a public library. In a college library, the greater part of the students find the books which they want for their daily work in the reading room. Advanced students and officers have direct access to the shelves, and in most cases prefer to look up their own books and work in the stack rather than to call for them thru the delivery desk. The books issued from the delivery desk are far fewer in proportion to the total number of books used than is the case in the usual public library. On the other hand, the grouping of the reading room, the collection of reference books, the card catalog, and the delivery desk all in close juxtaposition, but separated one from another, is a great advantage.

The capacity of the nine stories of book stack will be something over two million volumes.

GILMAN HALL: NEW LIBRARY OF JOHNS HOPKINS UNIVERSITY

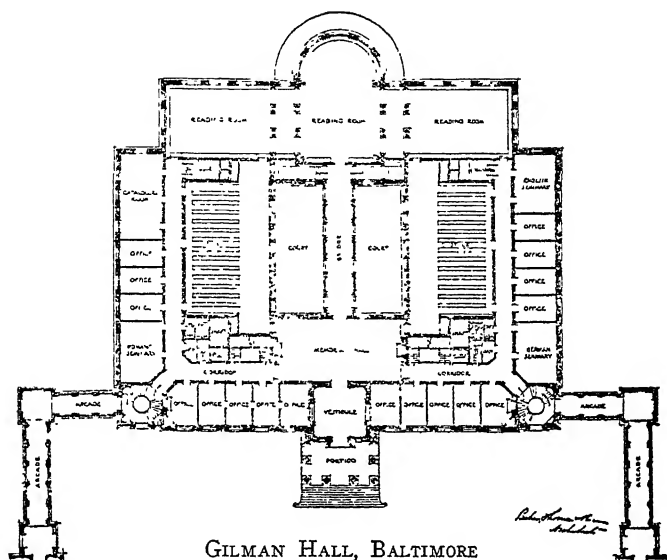
In sharp contrast with the Widener Library and also with the Michigan library, which follows this, we have Gilman Hall, primarily designed for departmental graduate work in one building. Its plan is here briefly described by M. Llewellyn Raney, for nearly twenty years librarian of Johns Hopkins University, and called to the librarianship of the University of Chicago in 1927. He was born in Stanford, Kentucky, in 1877, received his academic education at Centre College, Kentucky, and his Ph.D. from Johns Hopkins. He was active in the organization of the American Library Association overseas war service, and has contributed extensively to library publications.

Constructive work on Gilman Hall, the new library of the Johns Hopkins University, began last May, and should be completed by June, 1914. This is the first of the major buildings to be erected at Homewood, the future site of the whole institution except its medical department. Homewood is a finely wooded tract of 124 acres, lying along Charles street two and one-half miles north of its intersection with Baltimore street, the center of the city. There were originally 176 acres, but by terms of the gift a strip of 52 acres was cut from the western and southern sides and deeded to the city to form Wyman Park. Thru this, enlarged by purchases, passes a driveway to Druid Hill Park on the west. The city's famous suburb, Roland Park, is a near northern neighbor, and in both this direction and to the east the highest class of development, public and private, is taking place. Homewood is the center of a region which will readily prove to be the most attractive and picturesque about Baltimore.

The key to Gilman Hall is to be found in its provision for graduate work in the humanities. To be sure, there are a monumental reading room of over 6000 square feet, an assembly room for faculty gatherings and other small audiences, a memorial hall

beyond the vestibule, a museum of classical archeology, a treasure room, a room for photography, quarters for the library staff, a bindery, and the Johns Hopkins Press—features of great utility and in part of architectural distinction, but there is nothing particularly individual about these provisions. It is the solution of the departmental library problem that is here noteworthy. It is well enough known that at the Johns Hopkins this system is carried to the *n'th*. Faculty and librarian are wedded to it. But we recognize just as clearly that administrative efficiency therein can usually be gained only at almost prohibitive cost and after many years of confusion.

The man who is training investigators needs an office, next to this a conference or lecture room, and adjoining both the library of his subject where students find quarters and material. The problem is to federate these little communities. In our solution a square is halved by a vertical line, on the one side of which are the students and books, on the other the faculty and seminar rooms. For obvious reasons the line becomes a corridor. Faculty and students are next to the light, the book-stacks and corridor between. But the department has kindred which should be near. So a second space similarly divided is walled off parallel to the former and separated from it by a light court, across which therefore the students face each other. Then these two groups are united by a common room at the foot, in which are placed the departmental librarian with catalog, reference books, current journals, new and reserved books, etc. Departments are not only set parallel but in superposition, also of course, so that the libraries coming one over another admit of regular stack construction. But while the stack is of the typical Sned kind, departmental organization of it is secured by closing the slits on alternate decks, and so getting a continuous floor here corresponding to that of the building in each story. The top floor is assigned to the Historical-political group; the next to the Modern languages; the next to the Ancient languages. The Department of philosophy, psychology and education is inserted where convenient, and by a kind of accident Mathematics finds a harbor here. It can thus be seen that only three desks are needed to secure control of the entire book collection, and at night that in the reading room is sufficient. Library organization on the departmental, *i.e.*, laboratory basis, is reconciled with an economical administrative service.



GILMAN HALL, BALTIMORE

But such was not all the requirement laid upon those who framed this program. Provision had to be found here for teaching the under-graduate body in these same subjects till, as is expected quickly, that body grows large enough to demand separate quarters. So a strip of rooms were added in front and rear for offices and class rooms, and the building thus becomes a hollow square. A pretty good separation of graduate and undergraduate work is in this way temporarily effected, and yet the building is not made unfit for its ultimate purpose, for in these added rooms accommodation is found for the growth of graduate work. Across the rear is stretched the reading room also, which rises into a high vault in the uncovered center, expands into a western bow, and is connected by an artistic bridge with the Memorial Hall. Nearby is the catalogers' room, while the rest of the library staff is quartered in the front offices of this same first floor. Here too is a makeshift which, however, does not interfere with the anticipated development. The present number of undergraduate students can be handled at the reading room desk. But in time a separate delivery department will doubtless be needed. Its home, with the catalog, will be in

the so-called Memorial Hall. A telephone wire is already hid in the floor. The catalog department will then come to the front, and the library business, not now inconveniently conducted, will be compactly placed horizontally and vertically at the entrance. The only suit of rooms on the third floor is assigned as a place of rest to ladies, students and library staff separated, and for the men of the library staff similar provision is made in the basement.

Of the stack, which will ultimately consist of nine decks in each wing, the third thru the eighth will be installed at the outset. Fifty thousand feet of shelving are being constructed now. This can be doubled later. Plans for more or less indefinite extension are in mind, if such be the line of development deemed wise in the library world when we have thus quadrupled the shelving of the old building.

The building, which measures 204 x 160 feet exclusive of the bow, sits on a slope, so that, burying its nose in the bank, it conceals in front the basement story and half the next, thus giving the chance for effective colonial treatment and at the same time the service of four floors. The blind basement front is utilized in the storage of the Johns Hopkins Press stock, which need darkness and ready access to the university post office.

As no vehicles are admitted to the closed quadrangle, a service road passes to the rear of the laboratories and thru a hidden tunnel in front of Gilman Hall. Delivery is thus conveniently made to the Press, the post office and the library's unpacking room.

The telephone exchange, which serves every office on the grounds, is so placed that the postmaster may relieve the operator at lunch hour.

Toilets for both students and faculty are on every floor, and stairways in every quarter of the building, plus an elevator or two, provide safety in case of fire, which, however, should not be expected in this structure of brick, marble, iron, concrete and terra cotta.

While many details, *e.g.*, ventilation and lighting may be reported in *The Library Journal* when the building is finished, a note of acknowledgment must be recorded here. The architects are Messrs. Parker, Thomas and Rice. Mr. Douglas H. Thomas, Jr., the Baltimore member of this firm, is an alumnus of the institution, and has been indefatigable in his efforts to serve his

alma mater efficiently. He has succeeded, and it has been a pleasure to be associated with him for a year or more. The advisory board of architects—Messrs. Grosvenor Atterbury, Frank Miles Day and Frederick Law Olmsted—the jury which passes upon the entire Homewood development, have exerted appreciable influence not merely upon the artistic side, but upon every feature of the practical program.

The preparation of this program was intrusted by the president to Dean E. H. Griffin (chairman), Professors M. P. Brush, W. W. Willoughby, H. L. Wilson, and the librarian. From this committee emanated in every essential the floor plans here presented, tho of course a heavy draught upon the architects' skill was required for whipping them into shape. When in such operations the righteous cry of the unrecognized librarian is too often still to be heard, it is a duty, a pleasant one, to state that in this case the librarian was not only placed on the plan committee, where he served as secretary and therefore its intermediary with faculty and architects, but he was accorded membership on the Homewood committee, which, under the tireless chairmanship of the president of the board of trustees, Mr. R. Brent Keyser, has in charge the whole Homewood project. If he did not in any case get what he wished, it was because he lacked the ability to convince, not that he was denied a hearing. For that put a red line under the name of the Johns Hopkins University, of Baltimore.

NEW LIBRARY BUILDING OF THE UNIVERSITY OF MICHIGAN

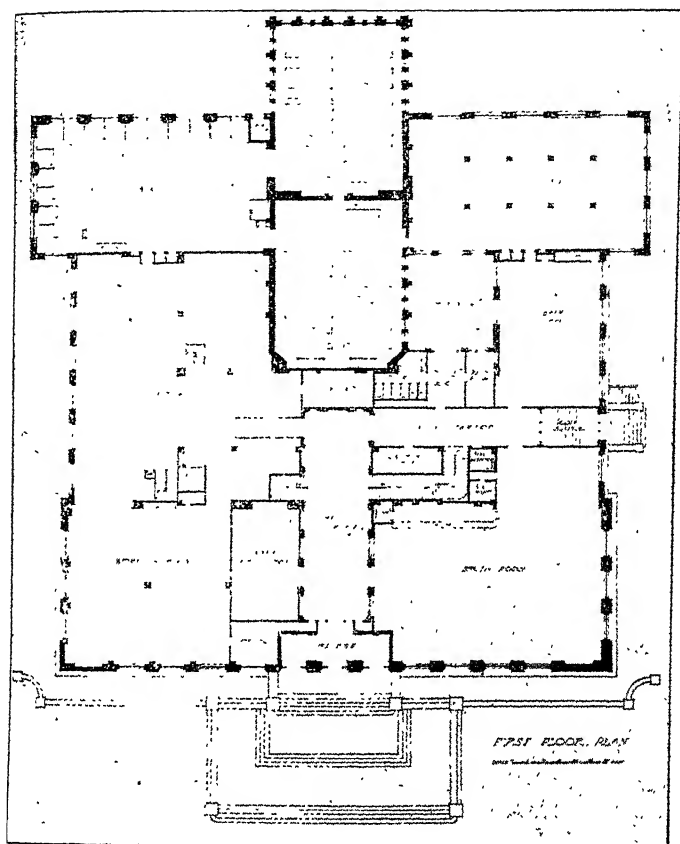
This article contributed by the university librarian, Dr. William Warner Bishop, to *The Library Journal* clearly shows the distinguishing characteristics of this building designed for the most economical and convenient service, and frequent reference to it in connection with such effectively designed buildings as that at Minnesota indicate its distinctive place.

Mr. Bishop's name will be found in Volume IV of this series, *The Library and Its Organization*.

The University of Michigan will open its new library building in October. This structure was built under two special appropriations made by the state legislature, the first of \$350,000 granted in 1915, and a second of \$200,000 from the legislature of 1919. In addition other funds to the amount of \$65,000 have been applied by the regents of the university, making the total cost of the building and equipment \$615,000.

The architect of the new structure is Albert Kahn of Detroit, the designer of the Hill Auditorium and the Natural Science Building at Ann Arbor, both models of their kind, and of numerous banks, office and factory buildings in Detroit and elsewhere. To his ingenuity and skill the library building owes much more than can easily be told, and his spirit of cooperation with librarians and the university has left nothing to be desired. To his great experience in factory construction is unquestionably to be ascribed the unusual size of the building in comparison with its cost; the structure being complete at about thirty-five cents per cubic foot, and that in an era of high prices exceeding all previous records in the building trades.

The new building is erected on the site of the old library, and incorporates the old book stack which was fireproof. The decision to use the old stack building—which would have cost quite \$150,000 to reproduce, to say nothing of the expense of temporary stacks, and the moving of 300,000 volumes—made the architect's problem exceedingly difficult. It was solved by erect-



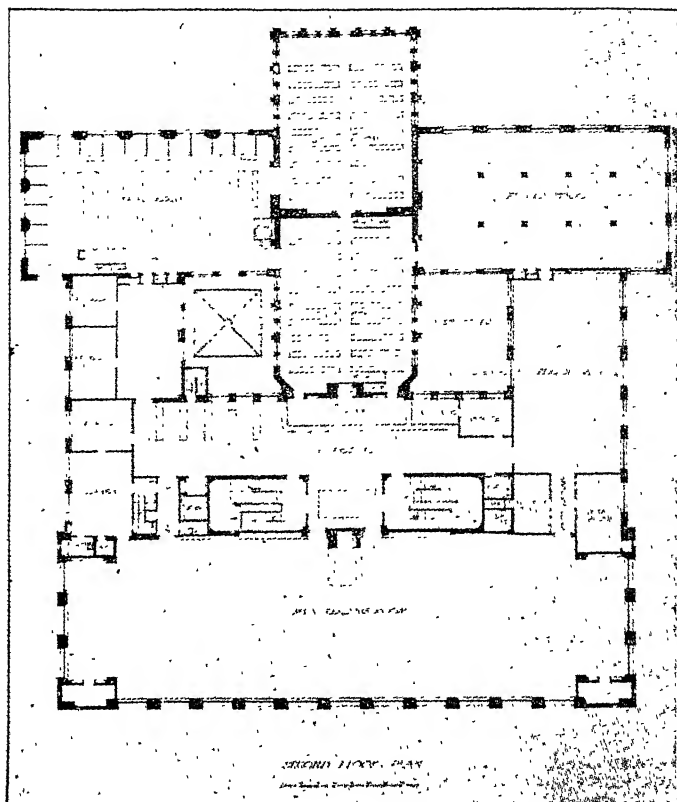
MICHIGAN UNIVERSITY LIBRARY: FIRST FLOOR

ing two stack wings at right angles to the old stack, and conforming to its varying levels. The northeast corner of the building was fixed by a thorofare running diagonally across the campus, which could not be cut into by the structure. The resulting building is 177 feet in breadth, 200 feet in depth, and four stories high, with two light courts on either side of the old book stack. This stack is five stack levels high—the new

ones have eight floors, and are built so that they may be extended to fifteen, bridging the old stack by girders carried on specially designed columns of reinforced concrete. A glance at the plans shows that books are housed in the rear and center, reading rooms are in front, and special reading rooms and work rooms are on the sides. The focal point is the juncture of the three stacks—and there the book carrier is installed, delivering books to the main reading room and to the delivery corridor, both on the second floor.

The architect has endeavored to provide for the future needs of the university by making the reading rooms, delivery corridor and staff work rooms as large as possible, with definite provision for extension of the book storage facilities as the collections grow in size. Certain of the public rooms can also be diverted to other uses as the university increases, for example, the work of the study room on the first floor can easily be done later in a recitation building, thus freeing space for an additional reading room. The medical reading room on the second floor will be released for other uses when the medical school secures a fireproof building and houses its library in it.

There are certain novel features in this new building at Michigan. Chief of these are the use of reinforced concrete construction and the unusual amount of light which that type of framework permits at a low cost. Of course reinforced concrete buildings are proof against fire originating in the structure, and in the case of this library there is no conflagration hazard from outside. Thus two absolute necessities of a modern library building, safety from fire and abundant light everywhere, are secured at a very slight expense as compared with the same results in a steel or masonry structure. The book stacks are designed primarily as research work rooms rather than as store houses. There are wide spaces between centers (54 inches), admitting of free movement in the aisles. Every other floor is closed tightly, the staircases are enclosed with glass and steel, and there are doors at the head of the stairs. In this manner each pair of stack levels is treated as a single unit for ventilation and there is no rush of heated air to the upper stories of the stack. Exhaust flues are incorporated in the stack, while the air ducts for the pressure system run in the columns on the outer wall of each stack building. Folios are kept in special oversize cases constructed of Snead newspaper shelving enclosed with cast iron plates and tops. These cases separate the carrels



MICHIGAN UNIVERSITY LIBRARY: SECOND FLOOR

from the aisles in a way to secure greater privacy to investigators using the carrels and at the same time furnish a very satisfactory solution of the problem of housing folios in the immediate neighborhood of the other books in the same class. No single feature of the new building is so highly commended in actual use as the provision of carrels for research workers. There are 102 tables in these separate compartments in the new stack. The same number can be provided later when the stacks are built in the west stack wing. The tables are large, with a fixed shelf

at the back. The student using one has control of his window, of his heat, and of the light in his stall, and there is a comparative amount of privacy.

The disposition of the main spaces is evident from a glance at the floor plans. The basement is almost wholly given up to special uses, receiving room, bindery, machinery room, staff quarters, etc. The basement is very well lighted and is a comfortable place in which to work, as shown by the bindery's experience in a year's use. The first floor houses the study room for undergraduate required reading near the entrance, thus saving much time to undergraduates and eliminating the crowding and discomfort attendant upon this service when performed in the same rooms with reference work. Differentiation of function has been, in fact, the key to the planning of the library. The staff quarters are in one large room on the east side of the building, light, airy and attractive. Provision is made for privacy for heads of departments by partitions of double-faced bookcases. There should be no congestion and great flexibility of arrangement in a large office-workroom of this sort, as has been proven time and again in the newer office buildings of large corporations. The ordering, classifying and cataloging are thus done on one floor under comfortable conditions. There is also a lecture room on this first floor, capable of seating about seventy-five students.

The second floor is the main service level. The approach is by double staircases of a very easy tread, and in addition there are elevators. The delivery corridor contains the card catalogs, the circulation desk, and a delivery counter. The book carrier delivers here as well as in the main building. This is a very noble room, 170 feet long, 50 feet wide, and 50 feet high in the center of the barrel-vaulted ceiling. There are eleven huge windows (9 feet side by 19 feet 6 inches high) on the north side, and three at each end. The rooms will seat about three hundred readers, while more could be given chairs, if necessary. At either end over the large windows are paintings by Gari Melchers, the Arts of war and the Arts of peace, painted in 1893 for the Manufactures building at the Chicago World's Fair. The subjects are the same as his well known paintings in the Library of Congress, but the treatment differs in details from those paintings. The evening illumination is by indirect radiation from reflectors concealed in the tops of the bookcases,

located, it will be observed, where they can be cleaned easily and frequently. The table lights are concealed in wooden frames running the length of the tables and furnished with concealed reflectors and diffusing planes of "flashed opal" glass. This table light is extraordinarily soft and free from glare.

The Librarian's office, the medical reading room, and a periodical reading room are likewise on the second floor.

The third and fourth floors are given over to graduate research and instruction. Four graduate reading rooms for the use of the students in the graduate school are provided, and across the corridor are class rooms for the meeting of seminars. These reading rooms will each have about eight thousand volumes, and are to be open like the rest of the library, fourteen hours daily.

The technical details of the building are most modern. All piping (steam, water, gas, electricity) is placed in vertical shafts; all wires are in conduits (mostly laid in concrete floors and columns); there are ample facilities for the inspection and repair of all plumbing and steam fitting. Motors and fans are insulated on cork and felt. The vacuum cleaning machinery (always noisy) is located outside the building under the front steps. In general these, and many other ingenious devices making for comfort, ease and cheapness of operation, are due to the architect and to the care and skill of Professor John F. Shepard who has supervised the construction for the university.

There are seats for one thousand readers in the new structure, divided between reading and study rooms, seminars, and stacks. It will house one million volumes without extension, and nearly a million more with the extensions planned for. It can be added to without seriously injuring its appearance or interfering with its working plans. And it has been built during the war at a serious sacrifice on the part of the contractors without any deviation from the original designs or important change in specifications.

SOME FUNDAMENTALS OF COLLEGE AND UNIVERSITY LIBRARY BUILDINGS

Generalizations upon the principles which have come to be recognized as characterizing this type of library building are infrequent. The following article by Frances Warner and Charles H. Brown, loan librarian and librarian, respectively, of the Iowa State College Library, points definitely to fundamentals which should control not only the interior arrangement but affect such other essentials as size and location.

Miss Warner was born in Clyde, Ohio, in 1890, educated at Wesleyan and the University of Illinois Library School. She was librarian at the Dakota Wesleyan University for four years before coming to Iowa State College in 1923.

Mr. Brown was born at Albany, New York, in 1875, received his B.A. and M.A. from Wesleyan University, and his B.L.S. from New York State Library School. His library experience includes that of reference librarian at John Crerar, assistant librarian in the Brooklyn Public Library, library specialist for the United States Navy, and librarian of Iowa State College, Ames, 1922 to date. He has also been consulting expert on libraries of land grant colleges for the United States Bureau of Education.

It is safe to say that on the average there are no university buildings which show so large a percentage of failure in providing for the needs of the university as the libraries. In many cases the failure of architects and librarians has been pronounced and costly. Buildings have been erected that within fifteen years have proved unsuitable, and which could not be even adapted for satisfactory use. The building at the University of Chicago, erected in 1911, and the library at Ohio State University, erected in 1912, are notable examples. It remains to

be seen whether architects and librarians have even yet solved the problem.

Furthermore, no comprehensive material on university and college library buildings is available. Possibly we university and college librarians have been at fault in our failure to present a manual of fundamentals in university library architecture and in our failure to insist that the library be erected with these fundamentals in mind. Mr. Soule and Mr. Hadley have presented very valuable monographs, but they deal mainly with public libraries. The problem of the university library is quite different. In the past the advice of librarians has been oftentimes ignored; possibly because no manual was available. Certainly any paper presented at a convention cannot more than superficially skim the surface. This paper attempts to mention only a few of the many fundamental factors which should be carefully considered before any plan is drawn.

An attempt to define the function of a college library seems necessary before we attempt to discuss the building. A library is primarily to serve as a means for the use of books by faculty and students connected with the institution. This objective includes use both within and without the building. Any use for other purposes which interferes with this function is a detriment. Too often the main function of a library building is overlooked. I know of one case where a proposed building was carefully divided up among the departments: English was to have the third floor; history and economics the second; architecture, art and design the first; and a printing plant was to use the basement. The question was pertinently asked "Was this appropriation for a library building?"

In the case of a new building the faculty undoubtedly would accept offices in the building. The students are always fond of social halls. There are demands for exhibit rooms, auditoriums, class rooms, club rooms, lunch rooms. How far will these alien uses, desirable in themselves, interfere with the main function of the library? How much will the students, passing back and forth to classes, interfere with the quiet that belongs to a place for reading and study? How far will such uses take space that is needed to enable a library to perform its function? A new building was erected within the last few years, which, according to the librarian, has insufficient room for the book collections in the building. However, much of the building is given over to offices and other such purposes. It is possible to include

temporarily auditoriums and class rooms if a separate entrance is provided and care is taken that the whole camel does not follow its nose into the library building. There is a decided danger, however, in the admission of the nose, and librarians have not been especially successful in preserving the needed space in the library for library purposes.

The first fundamental in the design of a library building is to understand clearly its function. The second is to provide for an arrangement which will enable the library to perform its function economically in regard to both finances and time of faculty and students. For this reason attention must be given to the location of rooms so that the card catalog will be accessible to the reference room, to the delivery room, and to the catalog department, otherwise a duplicate card catalog will be necessary at a cost variously estimated at from five to ten thousand dollars a year, or an amount equal to the investment of \$200,000.

A building arranged for economical service should also have the delivery desk in close proximity to the stacks to save the time of faculty and students, preferably in the vertical center of the stacks. This means, usually, that the loan desk will not be on the first floor. The first floor space will be available for the most used rooms in a university library—the reserve department, which will be near the main entrance—a very desirable feature.

The third fundamental is an adequate consideration of future enlargement of the building. The failure to study this fundamental causes heavy financial losses. Architects and university authorities have emphasized beauty, and, because it is difficult to erect a beautiful building which may easily be enlarged, structures have been erected as complete units with the thought that when other units are necessary the future would take care of them. Enlargement must be considered when the building is erected.

There is frequently failure to estimate correctly the space needed for the library collections. In one case a member of the Board of Education stated that it had taken the library thirty years to collect 100,000 volumes; therefore, with space provided for 200,000, the capacity would be good for thirty more years. An equally specious argument was presented on the other side; that in the last five years the library had added 50,000 volumes, therefore it had doubled in five years. Based

on a doubling every five years, the library would need space for 200,000 volumes in another five years, 400,000 in ten years, and 1,600,000 in thirty years, instead of the 200,000 originally estimated. In a space of less than five years the second argument had proven more nearly correct than the first and the limit of 200,000 will be reached in eight years instead of the thirty estimated by the Board member.

In estimating stack capacity there has also been a considerable misunderstanding. We estimate eight books to a running foot for university libraries instead of ten to a running foot as for the ordinary public library. We have 10,000 running feet; therefore we should have a capacity of 80,000 volumes. These figures are incorrect, altho they were given out at one time by no less an authority than Snead and Company. We all know we can never fill our shelves to the utmost capacity unless we arrange books according to accession numbers. A questionnaire was sent out a number of years ago to a number of university librarians. They all agreed that heavy shifting would be necessary when the collection of books equalled four-fifths of the capacity figured on eight books to the running foot. Therefore, if you figure your space on eight volumes to the running foot, subtract one-fifth. Instead of a capacity of 80,000 volumes for 10,000 running feet, figure on 64,000.

In regard to the use of the building by faculty and students there is a fourth fundamental, the seating capacity. We librarians do not seem to have the necessary faith in the increasing use of a library. We figured that a seating capacity equal to 10 per cent of the students in the institution at one time would be sufficient. The proportion has now increased to 15 or 20 per cent, and we would be inclined to estimate that it would be increased to 25 per cent in the near future. Indeed, one university has made preliminary plans on the basis of a seat for every student. In another case, a technical school where it is supposed that laboratories would require more time than a liberal arts school, a seating capacity equal to 20 per cent of the number of students has seen every seat occupied.

In figuring seating capacity a blunder has also often been made. We allow twenty square feet to every reader. For 200 readers we would need 4,000 square feet, or a room 40 x 100 feet. But if we place shelves all around the room we will require at least an additional three feet along all the walls. Therefore, instead of a room 40 x 100, we shall need a room 46 x 106,

or a total of 4876 square feet for two hundred readers. With shelves along the wall enough space to use the shelves without bumping against tables and chairs must be provided.

In every university and college library suitable arrangements are absolutely necessary for the use of the stacks by at least faculty and graduate students. This provision cannot be left to be worked out later. It must be considered in the early stages of planning the building.

Reading and study require an atmosphere of quiet. At times there is need of a room where research workers can type-write or dictate. Small rooms where debaters can work without disturbing others are also necessary. Larger rooms are needed for groups.

A fifth fundamental is the desirability of economical supervision. Many halls, many doors, many rooms cause heavy expense on account of attendants necessary. If a building has thirty rooms for the use of students, it is probable that sixty attendants will be required at a cost, say, of at least \$70,000 a year. Will the college add this amount to the library budget?

The question of adequate lighting, of rest rooms, and ventilation has been carefully worked out in the case of department stores. In public buildings erected under state appropriation the provisions for lighting, ventilation, and rest rooms have lacked attention. It is difficult to persuade a governing board that you need an expert on these matters. Yet irritability and even disability caused by failure to provide adequate lighting and ventilation must be taken into consideration before the plans of the building take final shape. The question of windows in relation to bookshelves may prove troublesome. Have you ever tried to look over shelves of book titles while you were facing a window with bright sunlight outside?

This paper can of necessity give only a few of the fundamentals which should be considered. These include:

First. A study of the function of a library, which might be defined as the provision of adequate accommodations for the users of books.

Second. The arrangement of rooms and of stacks for economical use both as to time and finances.

Third. Adequate provision for enlargement of building without any unnecessary expense.

Fourth. Adequate seating capacity.

Fifth. Easy supervision over halls and rooms.

Sixth. Adequate lighting, ventilation, and rest rooms.

It is believed that there is a great need of a manual of university and college library buildings compiled by librarians and architects working together. It is hoped that at some time such a study can be made and funds be provided for the work and publication.

DARTMOUTH'S NEW LIBRARY

As an example of the provision of library facilities possible to a small college with adequate funds for adapting the library building to the rest of the college equipment, a description by Mr. Goodrich of this building recently erected at Hanover, New Hampshire, has been included.

Nathaniel L. Goodrich has been Dartmouth's librarian since 1912. He is a native of New Hampshire having been born in Concord in 1880. Amherst is his college and New York State his Library School. His experience in college libraries is varied, as he was librarian at the Universities of West Virginia and Texas for two years each before coming to Dartmouth.

The Baker Memorial Library of Dartmouth College was erected in 1926-28 thru the munificence of George Fisher Baker of New York City. It stands as a memorial to his favorite uncle, Fisher Ames Baker, '59.

At the dedication the following statement was made by the librarian:

"Every achievement of the human spirit is based chiefly on faith. Those who planned this library planned it with faith, worked into its very fabric certain beliefs which none can prove, which I will not argue. They believed that more and more Dartmouth will teach that all things interlock about a central reality—therefore, they planned so to place the building that it be at the heart of the campus, yet so that related buildings could be grouped about it; to draw in all the books of the college; to keep the books for the most part central in the building, not dispersed. They believed that to surround boys with beauty is good—a part of their education. Therefore, of certain rooms, the design, color and furnishings were studied as problems in the creation of beauty. They believed that students should be given a chance to acquire the habit of reading, as a resource for leisure, as the surest way to retain a keen and useful mind;

therefore, the Tower Reading Room—an experiment in the cultivation of the reading habit.

“Of the background of these beliefs—of a central reality, of beauty, of the best of the heritage of the past, the tower is the symbol—for Dartmouth an inspiration, for the world a sign.”

The tower stands at the axis of the old campus and the new, altho to clear the site it was necessary to demolish Butterfield and erect a new natural science building. The college needed an architectural focus, symbolizing its spiritual purpose. Reminiscent of Independence Hall, with suggestions of the spire of early New Hampshire churches, brick below and white above, the tower unites the old Dartmouth and the new. As a whole, the building is colonial Georgian, designed with the utmost simplicity in order to harmonize with Dartmouth row. The tower contains a fifteen-bell chime.

The south entrance under the tower opens directly into the delivery hall, a simple, stately, colonial room in gray-white and gray, with crimson hangings and mahogany furniture. At the right are the cases containing the card catalog of the library and the desk of the reference assistant. At the left are cases containing the more interesting current additions. Into the north wall are set frames, glass covered, in which at a central point in the college, may be placed stimulating exhibits. Directly opposite the entrance is the delivery desk. Immediately behind this desk is the “stack” in which most of the books are shelved. It is open to students without restriction, entered by the door at the left of the desk. There are nine floors in the stack, which contains an automatic elevator and book lift. At the right of the stack, directly behind the card catalog, is the catalog room; at the left is the order room. Above these are two mezzanine rooms of the same size, intended for staff use when needed. At present one is occupied by the medical collection; the other, temporarily, by the art library.

On the north side of every floor of the stack, except the lowest, are semi-enclosed “carrels” for quiet work. There is space inside the building to enlarge the stack by over a third, and additions to the north are definitely contemplated. The capacity of the existing stack is 300,000 volumes, of the building 450,000 plus.

East and west of the stack, opening from corridors leading off the seventh, eighth and ninth floors, are small private studies

for members of the faculty. Above the stack are more, fifty-one in all. Here work can be carried on close to books, and without interruption or disturbance. The doors to the corridors are kept locked, no telephones are allowed, and typewriters, if any, must be "noiseless." These studies are assigned, for the period of a semester, to members of the faculty who seem to have special need of them.

At the east end of the delivery hall is a small stair hall. From this, to the south, opens the periodical room, where are kept the current numbers of nearly 1500 magazines, which are displayed on tables and ordinary bookshelves. Maple furniture was specially designed for this room.

From the same stair hall, to the north, opens the reference room. In the gallery are the Poole sets. The alcove arrangement, rare in modern libraries, was adopted in order to introduce here some suggestion of the secluded quiet of the English colleges. The gray green of the woodwork, arrived at after much study and experiment, was found later to match exactly the original colonial paint of the Alexandria ballroom, now in the American wing of the Metropolitan Museum.

There is a corresponding stair hall at the west end of the delivery hall. South from this opens a study hall. This is simply a quiet place to work, a retreat for students when there is no peace in dormitory or fraternity house. The class of 1902 met the cost of furnishing this room. Architecturally it is like the periodical room. But the equipment, designedly more informal, makes it very different. Rugs, small tables with individual lamps, a few easy chairs, framed prints—and the effect is utterly changed.

To the north from the west stair hall a corridor leads, past the general offices to Hough's Room. This, the "Treasure Room" of the library, was equipped by the class of 1879 in memory of their classmate, Judge C. M. Hough of New York, whose portrait, a copy by Katzieff of the original Speicher, is above the fireplace. The windows, of cathedral glass, contain designs and legends having to do with the history and traditions of the library and the college; and, but very inconspicuously, as far as it was possible to secure them, graduating and contemporary portraits of members of the class of '79.

The general offices of the library adjoin Hough's Room. The librarian's office is panelled in pine, the ceiling being an adap-

tation of that in the room from Hampton, N. H., in the American wing of the Metropolitan.

The basement floor, some of it being practically above ground, has much natural light. Under the delivery hall is a room of the same area but less height with outside entrances at each end. Here is the "reserve book" counter. From the stair hall at the east end open two reading rooms in which these books may be used. They are a kind of selective reference room.

From the west basement stair hall, to the south, a corridor leads to the photostat room, certain unassigned rooms, and to the future connection with Sanborn House, the home of the English department. North the corridor leads to the archives room; a charmingly furnished rest room and kitchenette for women of the staff; and the future passage to Carpenter Hall, the art building. Receiving room, janitor's room and storage for newspaper files occupy the rest of the basement.

Off the mezzanine landing of the west stairway is the Woodward Room, equipped by gift of an alumnus as a memorial to Bezaleel Woodward, first professor of mathematics and first librarian of the college. Woodward's house stood near the southeast corner of Baker. In its southeast chamber the college library was kept from 1772 to 1777. This room is intended as a suggestion of the library as it may have looked at that time. There exists a contemporary Ms. list of the books in the library in 1775. The books in this room are those identical volumes in the library at that date which have survived the years. Lying open on the desk is a *Gradus ad Parnassum* (a sort of handbook for literary composition); on the table is a *Bible*; on the floor a drum. The words of Hovey's "Eleazar Wheelock" come to mind:

"Oh, Eleazer Wheelock was a very pious man:
He went into the wilderness to teach the Indian,
With a *Gradus ad Parnassum*, a *Bible* and a drum,
And five hundred gallons of New England rum."

The rum did not last as long.

Continuing up the west stairs to the second floor, corridors run north and south from the stair hall. These lead to seminar and conference rooms in which faculty and students may meet in small groups for informal instruction, especially in those subjects which require many books to be available. The second

floor of the east side of the building is a similar plan, and altogether there are thirty-six of these rooms.

The Tower Room, occupying the central part of the second floor, may be entered from either the east or west stair halls. This, the largest reading room in the building, is intended as a place in which to read for pleasure rather than for marks. In many ways it is similar to the library of a city club, which is as close to the informality of a private library as it seems possible to get in an institutional building. Smoking is permitted. The room is panelled in Virginia white oak, with bookcases arranged as shallow alcoves, galleries over and a great fireplace at either end. Screens divide the room into three parts. In the central collection is the Kenerson collection, a standard library of 1000 volumes. The alcove chairs are the result of a long search for a chair which would be simple, sturdy, not too bulky, yet supremely comfortable. During the winter the fires are lighted every day at dusk. The rest of the room contains about 3000 volumes selected, in the main, for their readability. The faculty was asked to suggest books they would like to see on these shelves, especially books they personally enjoyed, which had aroused their enthusiasm and trained them in the use of leisure.

No rules or restrictions are posted here. It is assumed that the room and its contents will be regarded as one would the library of one's club. It is possible that in after years some students may feel that in this room were spent some of the most valued hours of their college life. Now and then during the winter poetry or prose is read aloud here by members of the faculty, with lights dim, the fire glowing and coffee served in the background. By day the great windows look down the campus. If the library is in some sense the heart of the college, this room is the heart of the library. Dallin's fine bronze, "The Invocation to the Great Spirit," has here a peculiar fitness.

The ground plan of the building, together with the size and relative location of rooms, follow very closely suggestions made by the librarian, working with the help of three successive committees of the faculty, who have worked on the plans over a period of thirteen years.

The Baker library was planned primarily as an undergraduate building, but with provision for faculty research. Its total seating capacity is not far from 40 per cent of the student body of 2200, altho this includes seminars and studies. The

ground floor was made the main floor and public rooms and service rooms were concentrated about the delivery desk and card catalog. There is no large main reading room. Instead there are six; two for "reserve" work, one for "browsing," one for general study, one for periodicals, one for reference books. Regarding furniture and interior decorations, a great deal of that went into the effort to make the library as comfortable, as little "institutional" as possible, and to make it beautiful.

The designer of the library was the college architect, Jens Frederick Larson of Hanover. The design and selection of furniture, rugs and hangings was very largely done by Homer Eaton Keyes, '00. Professor C. N. Haskins, relieved from teaching for the purpose, devoted most of his time for two years to the library. To his unremitting attention to detail the building owes a great deal of its success. He made a special study of the lighting problem. The cost, complete with furniture, grading, etc., was in the vicinity of \$1,200,000.

FISK UNIVERSITY'S NEW LIBRARY

Tho the new Sterling Library at Yale has the most striking example of the tower stack, the use of the "beveled and tapering Gothic tower" which features the new Fisk University library creates an effect in a library of limited size which strikingly illustrates the modern tendency in American business buildings.

Mr. Louis S. Shores, the librarian, whose description of the building follows, was born in Buffalo, New York, in 1904, educated at Toledo University, College of the City of New York, School of Library Service, Columbia University, and Graduate Library School, University of Chicago.

His library experience includes that of reference assistant, New York Public Library; instructor in Library School summer courses at McGill University and the University of Dayton, and his present position since 1928.

It is a collegiate Gothic type built of red brick and crab orchard stone. The first three floors are full size and include the service, reading and instructional rooms; the top six are stack tiers and comprise the beveled and tapering Gothic tower. This Gothic tower is perhaps the most distinguishing feature. It contains approximately 20,000 linear feet of shelving with a capacity for 150,000 volumes. As the present collection numbers some 30,000 volumes a 500 per cent increase has been allowed for. In addition, the vertical stack principle permits theoretically unlimited expansion upward "with the sky as the limit." But the librarian has the temerity to predict that expansion never will be necessary, simply because the *live* college collection cannot number more than the present capacity. When the total number of volumes increases to above this figure it will be time to sort and to store the less useful titles more economically in an adjacent warehouse.

Communication between the delivery desk on the second floor and the stacks which begin on the fourth floor is affected by means of the teletype machine, a gravity chute and an elevator. The teletype is a telegraphic typewriter serviced by the American Bell Telephone Company; one sending and receiving machine rents for seventeen dollars a month and a second receiving machine costs thirteen dollars monthly. On a nine month basis the rental is about three hundred dollars a year. The installation of a tube system would have cost approximately two thousand dollars and would have necessitated the employment of a mechanic to service it or the inconveniences attendant upon unserviced communication. The local telephone company assumes all responsibility for the teletype machines installed and inspects their operation regularly.

Call slips presented at the delivery desk are typed and transmitted telegraphically on a ribbon of the receiving machine in the tower stack. A student assistant secures the book and places it in a basket which is carried by its own weight down the gravity chute to the desk. This gravity chute is a simple steel spiral with no working parts to get out of order. It can be used only with a vertical stack in which the lowest tier is above the highest reading room. The baskets are constructed of metal and the corners are covered with a noise-deadening material. Originally leather was placed on the corners, but so much friction was developed that the speed of delivery was slowed considerably. Now fiber corners are used and a minimum of noise as well as a maximum of speed is secured. The automatic elevator is used for the more leisurely return of books to the shelves.

The second, third and fourth levels of the stack have four corner rooms each of which give the beveled effect to the exterior of the tower. These little rooms are about eight by ten with windows on four sides and a combination of seclusion and stack access which is only short of miraculous. They are used exclusively for professors' study carrels and are equipped with special steel partition desks constructed by the Art Metal Company.

The general reading rooms are on the second floor. One is a reference room where stack books are issued, and the other is a reserve book room with a double tier of steel shelving behind the delivery desk. Each of these rooms seats one

hundred twelve, and as the liberal arts college enrolls a maximum of five hundred students, nearly half of the student body can be seated at one time. In addition, the second floor contains the public catalog, the preparations division, librarian's office and a staff rest room.

There are several special reading rooms on the third floor. One is devoted to a collection of Negro history and literature and the other is a periodical room. Each of these seats fifty readers. Smaller rooms on this floor are devoted to Fiskiana, debating and seminars. The browsing room has the front portion of this floor and is equipped with two fireplaces, brown leather easy chairs and settees, floor lamps, draperies and the beginnings of a student library. The ground floor combines the functions of a basement and a first floor. It includes locker rooms and toilets for men and women, supply closets and a shipping room. It includes, also, a Carnegie branch library and the quarters of library science.

The building was designed by Henry C. Hibbs of Nashville. Erected and equipped it costs about \$350,000. An unusual feature are the murals in the reading rooms done by Aaron Douglass, Negro artist who illustrated James Weldon Johnson's *God's Trombones*. The murals depict the history of the Negro race in a sort of running pageant around the walls above the book cases.

It is doubtful if anyone realizes the functional shortcomings of a library more than the librarian who has helped to plan it. There is the major question of the tower stack; is it practical or is it merely an architectural fad? Fifteen months of study and planning which included a symposium of the leading librarians' opinions on the relative merits of the vertical and horizontal stacks preceded the decision to build a tower. The chief advantages of the vertical over the horizontal stack seemed to be:

1. Natural light on all four sides which is one more side than the best horizontal stack affords. (If natural light is really a contributor to book stack deterioration as very recent investigations seem to indicate, then this advantage is of questionable value.)
2. Unlimited room for expansion with the "sky as the limit."
3. The position of the stacks *above* the reading rooms prevents cross currents of service on the same level.

4. The methods of book delivery are simplified. All horizontal conveyors require working parts which are always subject to mechanical difficulties.

There is also the question of administrative costs. The criticism here is based on the assumption that in the horizontal arrangement one assistant can both operate the desk and secure the books from the stacks. In a very small library this is possible, but as the library increases in size the desk demands either an additional assistant or a stack page. The personnel of the vertical stack arrangement comprises one desk attendant and one student assistant, and the book conveyor requires neither power nor attention.

It has always seemed to me that the chief advantage in having an architect and a librarian plan a building together is that each in describing the building to his own professional group can hold the other responsible for the apparent shortcomings. Certainly, until there is a more exact building science than now belongs to librarianship no librarian or architect need fear that he may create a monstrosity.

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STERLING MEMORIAL LIBRARY

A number of new university library buildings have been constructed in recent years, among which the Yale University Library towers in a literal sense because of its style. It also is distinctive for the cathedral-like dignity and spaciousness of its interior as well as adequate and practical provision for such types of service as are demanded of a twentieth century university library. This description is contributed to *The Library Journal* by Andrew Keogh, the librarian, a sketch of whom will be found in Volume VIII of this series, *The Library Within the Walls*.

I want to give you a brief history of the Yale Library, both in the sense of the collection of books, and in the sense of the buildings which have housed these books; and I shall speak more particularly of the library during its first century and a half, or until the erection of the building which for many years we have called the Old Library. That old library is now a symbol of Yale's past. The Sterling Memorial Library is a symbol of Yale's future.

In his 1766 version of the founding of Yale, President Clap tells the story of the meeting of ministers at the house of the Reverend Samuel Russel at Branford, and the placing on a table of some forty folio volumes, with the words "I give these books for the founding of a college in this colony." Mr. Dexter, who examined this tradition with the skill of a trained historian, denied that any such formal and dramatic act ever took place, but that it probable that the ministers present agreed to give books from their own scanty libraries as a nucleus of college property. I accept Mr. Dexter's reasoning, but I do so regretfully, because I like the picturesque and beautiful tradition; and I have seen to it that the doors thru which the ministers passed into the Russel parsonage are preserved permanently. How long the books were in Mr. Russel's house we do not know. It is

likely that they were taken in 1702 to Killingsworth, where the collegiate school had its headquarters in the house of its first rector, the Reverend Abraham Pierson. On Pierson's death in 1707 the books were presumably transferred with the school to Saybrook, and kept in the schoolhouse given to the trustees by Nathaniel Lynde, or in the parsonage of the Reverend Thomas Buckingham across the green. The collection grew rapidly, chiefly thru the efforts of Jeremy Dummer, agent in London of the Connecticut colony. In 1714 he collected and sent more than seven hundred volumes, of which a fifth were given by himself, and the rest by men like Sir Richard Steele, Sir Isaac Newton, Richard Bentley, William Whiston, Bishop Kennet, and Elihu Yale. Practically all the current books of importance were included in the shipment, books in philosophy and medicine and history as well as in theology. Before the library was brought here from Saybrook in 1718 it numbered some thirteen hundred volumes, but many were lost in the effort to prevent the removal of the school to New Haven. The ox-carts used in bringing the books were destroyed at night; the bridges between Saybrook and New Haven were broken down; the books were about a week on the road; and about a fifth of the collection never reached its destination.

In the new college house, named Yale College in 1718, the library was on the second floor. Four hundred additional volumes, mostly gifts from Elihu Yale, made up for those lost in the Saybrook struggle. The library grew slowly until 1733, when Bishop Berkeley, then Dean of Derry, sent from England some nine hundred volumes. We have on exhibition today the original list of these books, and anyone who sees how carefully selected they were, and how wide the range of the Bishop's interest, will accept President Clap's statement in 1766 that it was the finest collection of books that ever came together at one time into America.

Ten years later, in 1743, President Clap printed a catalog of the library, which then contained about twenty-six hundred volumes. We have on exhibition the original manuscript of this catalog, showing how the books stood on the shelves, and we have collected the books themselves and have placed them in the "1742" room in their original order. The room is entered thru the doors from the Russel parsonage, and the catalog has been reproduced in facsimile.

In 1763 the books were removed to a new building which served both as a chapel and a library, and which was known later as the Athenaeum. Here again, the library was on the upper floor, and here it stayed until 1804. During the Revolution, however, about three quarters of the books were taken to Northford, Durham, and Westbury for safety, and many of them never came back. In 1755 the library had three thousand volumes; in 1782 fewer than twenty-five hundred.

In 1804 the books were removed again, this time to the upper floor of the Lyceum, erected in 1803 and demolished in 1901. In 1825 they were transferred to the attic of the second chapel, built in 1823-24 and demolished in 1896, there to stay until 1843, when they were taken to the first separate library building.

This separate library (called the Old Library since 1889 when Chittenden Hall was built), was begun in 1842, altho not completed until 1846, owing to a business depression. The building was estimated to cost \$30,000, and actually cost \$34,000, but when \$13,000 had been raised and spent the work was suspended until more money was available. Two small rooms were finished, and the books belonging to the college were transferred in 1843. The southern wing later housed the library of Linonia, and the northern wing the library of Brothers in Unity. These student organizations were founded respectively in 1753 and 1768, and their libraries were consolidated and transferred to the care of the college library in 1871-72. Up to that time the college library did not attempt to provide books for ordinary undergraduate use; indeed, it was not until 1871 that freshmen were allowed to use the college library. Linonia and Brothers have a long and honorable history, which I must reluctantly pass over.

At the time of its erection the Old Library was the largest and finest building Yale had ever put up, and there was a good deal of criticism of the Corporation's extravagance. This criticism was answered by one of the Fellows, Dr. Leonard Bacon, pastor of the First Church of New Haven, in an article published in *The New Englander* for July, 1843. Some have objected, he said to an expenditure of \$30,000, saying that \$13,000 would have put up an adequate building. "Undoubtedly," he replies, "thirteen thousand dollars might have erected a building sufficiently ample to afford a present accommodation for all the libraries of this institution. But in erecting an edifice which is

to stand for centuries, and in which room must be found to accumulate not only what may yet be collected of the literature of the present and of former ages, but the countless volumes to be produced by future generations, it would be bad policy to regard nothing but present accommodation." The Old Library is being remodelled to serve as the headquarters of the University Christian Association; Chittenden Hall, opened in 1889, and Linsly Hall, opened in 1905, are being made over for use as class rooms for Yale College. In five years men will be graduating who will not have known these buildings as libraries.

The Sterling Memorial Library was built out of a bequest by John William Sterling, who graduated from Yale in 1864, and died in 1918. The site, which measures approximately 350 by 360 feet, is at the center of the University and of New Haven. The architect was James Gamble Rogers, Inc., and the general contractor Marc Eidlitz and Son, Inc.

The style is Gothic, in keeping with neighboring buildings, and the exterior stone is chiefly a grey granite, with limestone trim. The material is like that in the adjacent Memorial Quadrangle, but for variety the blocks of stone are cut and laid in a different way. A closed avenue, one block in length and 120 feet wide, will shortly form an approach to the entrance hall, with the book tower at the end of the vista.

The tower is 90 feet wide, 135 deep, and 150 high. Including the basement it has sixteen floors, with seventy-five miles of shelving, and a book capacity of two million volumes. Most of the floors have stalls or carrels, ordinarily four by five feet, with three or more shelves, and a desk with a drawer for papers. Some stalls are larger, enclosed, and lockable. There are three hundred and thirty stalls all told. The fourth floor and those above it have also a score of studies and seminaries for advanced students. There are in the tower two public elevators, three staff elevators, and two dumb-waiters; pneumatic tubes for call-slips and messages; an electric book-conveyor; and 4,500 lighting outlets.

The second, third, and fourth floors have wide lateral extensions, with an interior court. The fourth floor extension is largely stack, but it has also the beautiful Penniman Memorial Library. Those on the second and third floors are used chiefly for seminaries and studies, and for the housing of numerous and important special collections.

The first floor is the main floor, and is practically on the ground level. Here are the public catalogs, the delivery desk, the reading rooms, the exhibition rooms, a Yale room, a lecture room, and the work rooms for the staff. The reading rooms include a general room seating 200 readers and shelving 12,000 reference books; a reserve book room seating 200 and shelving 11,000 volumes, with an adjoining stack for 14,000 volumes and a stack below for 27,000 more; a periodical room with 100 seats and 1,400 current periodicals; and a select library for undergraduates with 120 seats and 20,000 of the best books in English. The lecture room, primarily for use in connection with exhibitions, seats 150 persons. A central bibliography room serves the readers, as well as the reference, accessions, and catalog departments. Most of the partitions in the work space are easily moved to meet changing requirements. The dextrigraphed official catalog, with its million cards reproduced by photography in 100 days, adjoins the bibliography room.

In addition to the usual offices for janitors, charwomen, and mechanics, the basement has a "commuters' study," where non-resident students may read their own books and write essays and reports. There are 100 seats in the room, and 1,800 reference books.

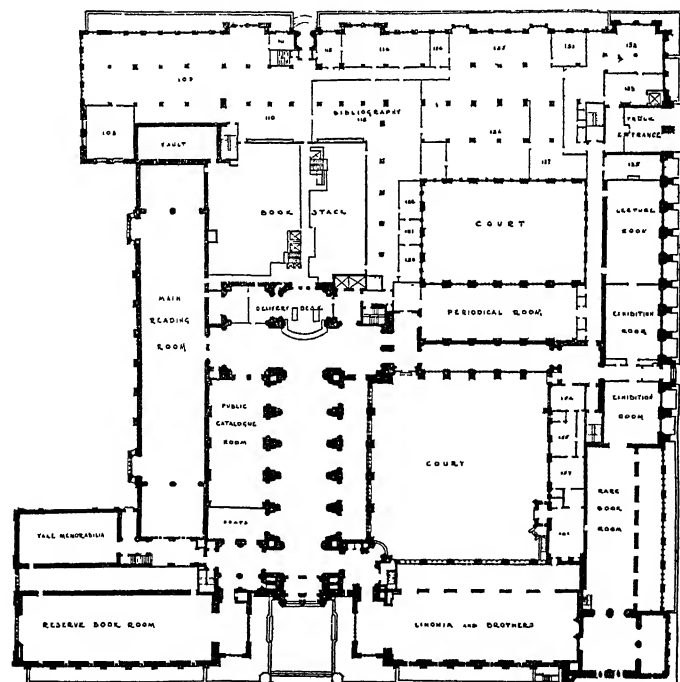
The rich ornamentation of the building, both inside and out, is worthy of detailed study. In general, it symbolizes the history of libraries and books, and it uses as its medium stone, wood, metal, and glass. The *Yale Library Gazette* for April, 1931, which is a monograph on the building, has a section describing the decoration in detail.

Visitors should not overlook the room reproducing the Yale Library of 1742. In that year President Clap made a catalog of the books at Yale, indicating the arrangement on the shelves, and as many of the volumes as remain have been placed in their original order in a room designed to reproduce as closely as possible the library as it was in the middle of the eighteenth century.

We are at the end of an era, but an era in which great things have been accomplished, material, intellectual, spiritual. The first library endowment, one of £10 given by Jared Eliot in 1763, has been followed by a hundred others of a total still woefully inadequate, but much greater than our predecessors would have dreamed necessary or even possible. The forty

volumes given by the ministers have grown to two millions. We now add as many books in a year as had been accumulated during the first century and a half of our history. But the number of volumes in a library means little more to a librarian than their cubage or their weight; it is appropriateness, it is quality that counts.

The ideal library for the undergraduate is a sufficient number of the best books administered in the best way. The ideal library for the investigator knows no limits of number or subject or language or date, and places experts in charge of its various sections. In practice no single library can collect everything. There will always be national and special depositories to which the research worker must go to master his subject. But an individual library may be unusually rich, may even be

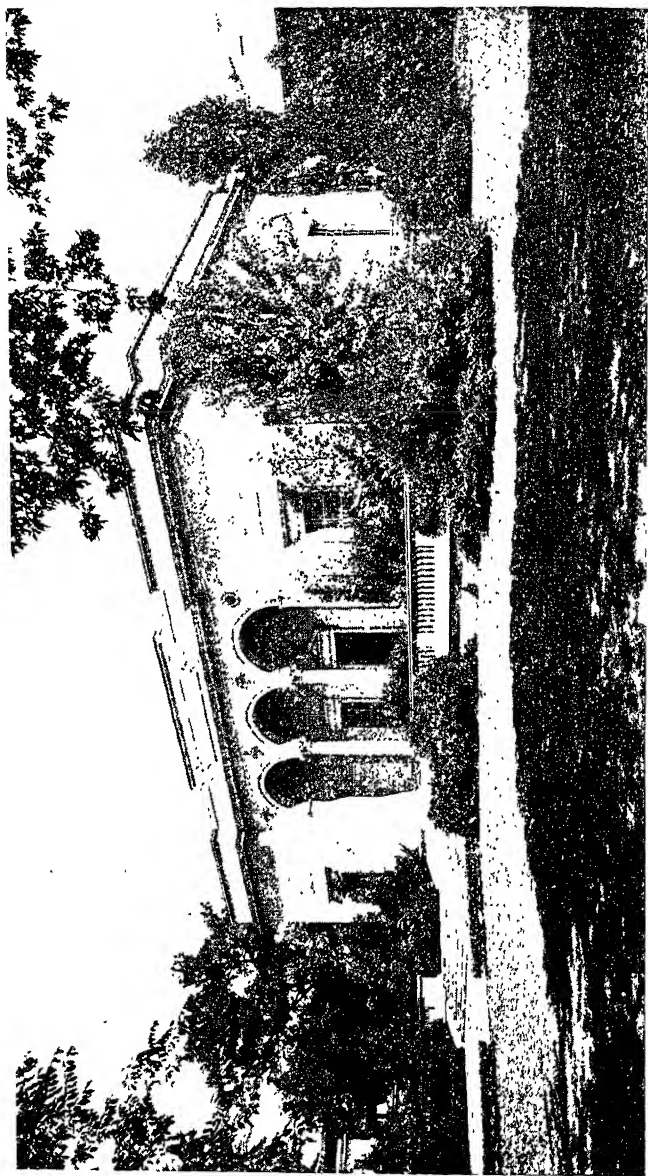


STERLING LIBRARY; FIRST FLOOR PLAN

supreme, in one subject or in a hundred subjects, and it is distinction of this sort that attracts students and teachers. The librarians, the library committees, the professors, the curators, the graduates and other friends of Yale who have made this library what it is have confidence that its future will be worthy of its past; and the Yale Library Associates are determined that the contents of the building shall be as notable as the edifice is superb. A library is an instrument of learning and of power. It is an old instrument at Yale, as we have seen; but its possibilities have been immensely increased by the princely provisions of the Sterling bequest. Here our faculties and students and the scholarly-minded of the community in which we live will find facilities for study greater than Yale has ever known. Once more Yale's largest and finest structure enshrines its books.

SPECIAL LIBRARIES

It is impossible to designate anything as "typical" of special library architecture. The special library ranges all the way from a great building to house a rare collection like the Henry E. Huntington, to one room filled with steel filing cases in a financial or industrial institution. This section includes descriptions of a few buildings which are distinctive and which fall in no other group.



WILLIAM L. CLEMENTS LIBRARY OF AMERICA

JOHN CRERAR LIBRARY'S NEW BUILDING

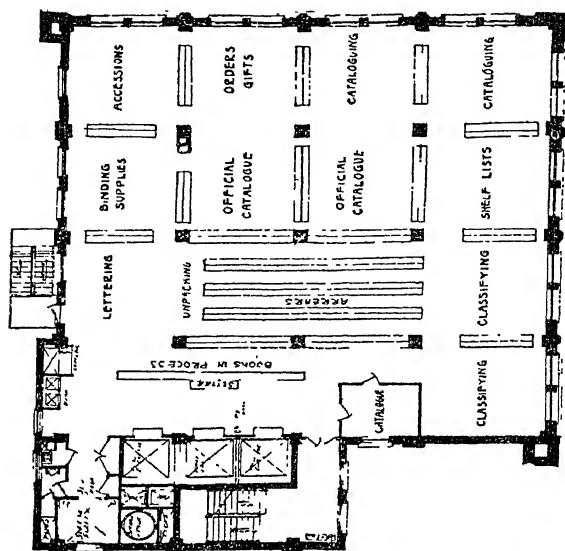
The practical attempt to carry out his principles of economics quoted in the first section of this volume is so constructively presented here by Clement Walker Andrews that it seems to illustrate basic theories and at the same time exemplify the requirements of the reference library.

A sketch of Dr. Andrews is in Volume V of this series, *The Library and Its Contents*. He died November, 1930.

In the first part of this paper (see *Library Journal*, May 15, 1921) an attempt has been made to state the general principles of the economics of library architecture. This second part treats of the application of these principles in a rather peculiar case, that of the newly erected building of the John Crerar Library.

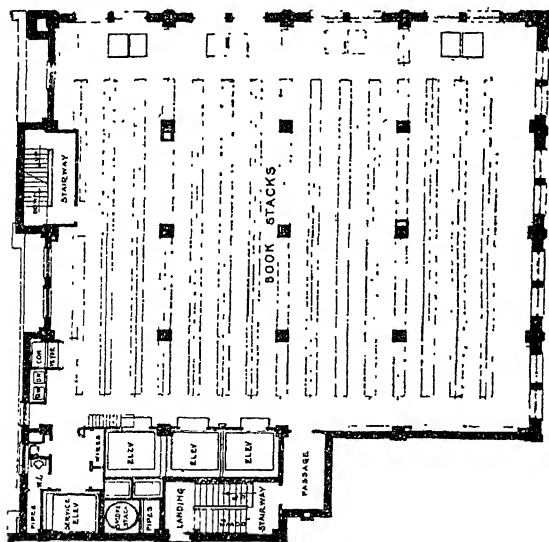
The question of a site for the library was of course one of the first to engage the thots of the directors. Before coming to a decision as to the most desirable location of the permanent home, temporary quarters in a central location were secured, in order to learn by experience the nature of the service the library could best render, the classes of readers it would serve, and especially the parts of the city from which they would come. The early reports of the library contain the results of these investigations. From them it became evident that the greatest usefulness could be secured only in a central location, within the business district and accessible not only from all parts of the city but also from the railway stations. It was found that the numbers of readers coming from each division of the city and directly from offices in the business district were approximately equal and that an unexpectedly large number came from out of town.

That such considerations are important is self evident, but the magnitude of the economic factors involved might well be



TENTH FLOOR

JOHN CRERAR LIBRARY



SEVENTH FLOOR

overlooked. When the South Park Commissioners asked the directors to consider placing the Library across the Illinois Central tracks instead of alongside the Art Institute, the President, Mr. Hughitt, pointed out to them that a removal further East of only five hundred feet would entail upon every reader an additional walk of one thousand feet. As at that time one hundred fifty thousand readers were using the library each year this meant that the citizens of Chicago would walk each year thirty thousand extra miles and even at the brisk pace of four miles an hour take ten years of working time for this extra walk.

Again the directors have always laid stress on the importance of a site near the Chicago Public Library, with which the John Crerar does not compete, but which it supplements. Personally, I had not considered this very important, and was rather surprised to have the reference librarian of the Public Library tell me, the other day, that she would be very glad to have us established in our new quarters, as it would save her much time in directing people where they could find the books they wanted. To say "across the street" would be much easier than to give the elaborate directions she then found necessary. If this saves time for her it must be a much greater economy of time and money for the readers to go across the street instead of to such a location as that of the Newberry Library.

The temporary quarters mentioned did not prove to be as temporary as was expected. Intended to serve for five or ten years at the most, they have had to serve twenty-five years with such additions as could be obtained in a building in which space has always been in great demand. Indeed some of the staff became pessimistic and referred to them as the permanent quarters. The causes of delay were beyond the control of the directors. Until 1910 they fully expected to secure a site on Grant Park nearly opposite the Public Library. The Illinois Legislature passed two separate acts permitting this and their action was accepted by the City Council and the South Park Board in ordinances approved by 95 per cent of the abutters, and ratified by a large majority of the voters for the South Park District, but was negatived by a decision of the Illinois Supreme Court on the ground that the question was *res judicata*.

The directors next proceeded to obtain a site by purchase. They announced their willingness to consider any between Twelfth Street and the river. Perhaps a score were offered and

finally in 1912 they bought the property at the northwest corner of Randolph Street and Michigan Avenue. It runs one hundred thirty-five feet north on the Avenue and not quite one hundred thirty feet west on Randolph Street to the alley. When purchased there were on it four buildings of varying sizes, the one on the alley being of fireproof construction.

While a lay-out and partial floor plans had been made for the Grant Park building, it was with the purchase of the Randolph Street site that the preparation of plans began in earnest. Messrs. Holabird and Roche were selected as the architects. The plans now carried out are the ninth set on which estimates have been asked and many of these sets in their final form were the result of repeated modifications.

The reasons why so many plans were made are many and varied. Among them are the varying size and character of the buildings to be destroyed, the very different bonuses which would have to be paid for the cancellation of the existing leases; the ambition of the Kaiser; the widening of Michigan Avenue; the shifting of the millinery trade; all economic considerations not previously mentioned.

All plans have contemplated the utilization of the whole property ultimately, but the first proposed to begin with the north fifty-five feet; the second with the south eighty feet; the third to the sixth were for the temporary use of the old buildings during the war, with or without a small portion of the permanent building; the seventh and eighth proposed to use all but the alley building; while the ninth uses only about eighty feet square on the corner.

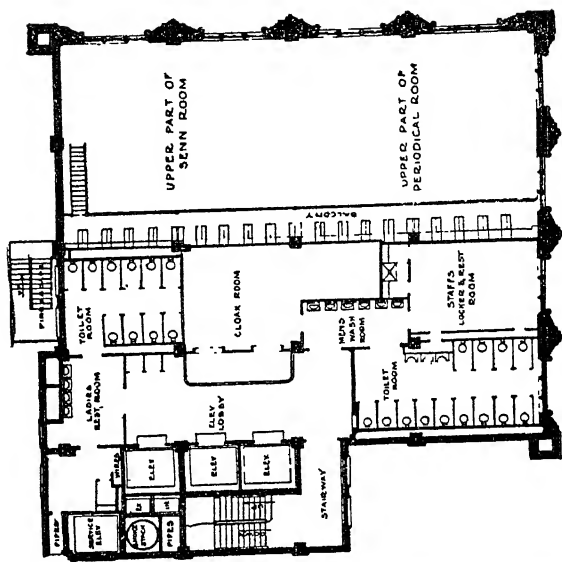
The only ones of interest now are those for the Grant Park building as illustrating the ideal; the one for the complete building as illustrating the best attainment of this ideal possible with a restricted area, and the necessity of securing income from rentals; and the actual building as showing the compromises due to the present high cost of construction.

The Grant Park building was a condensation of the New York Public Library, avoiding some of its disadvantages, but securing most of its advantages. Had this plan been carried out it would have given the Library a building admirably adapted to its use at the time. Even after twenty years it would require only a few and minor changes to adapt it to the needs of the present time.

The area of the Grant Park building would have been approximately sixty thousand square feet; that of the Randolph Street site is seventeen thousand. It is evident that a building on the latter to secure the same capacity would have to be much higher. Moreover, the fact that not only the building but the site has to be paid for from the funds of the library made income from rentals a necessity. Fortunately, the loss in actual efficiency is more apparent than real. It is true that the ground floor no longer could be used for library purposes, but it is also true that a floor on the level of and abutting immediately on a busy street is not at all desirable for such purposes. Note in this connection the Chicago Public Library which does not use its ground floor for any of its more important rooms. Nor, if the elevator service is sufficient, does it make much difference how high the reading rooms are placed. The trip in the elevator is the smallest fraction of the time spent by a reader in obtaining his book and a seat in which to use it. It will be, I am sure, much less than that spent by the majority of readers in the larger libraries in climbing the monumental stairs so generally and generously provided by the architects.

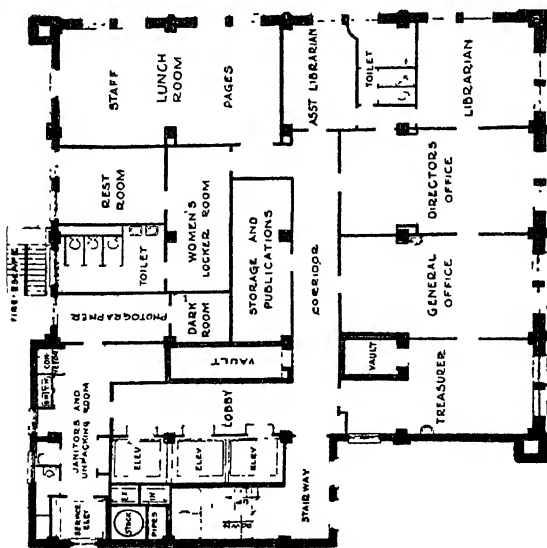
The plans for the present site recognize these facts and also the compensating advantages of better light, purer air, and greater quiet, and place the main reading rooms at the top of the building; the subordinate reading rooms below these; the offices and work rooms below these; the stacks below these; and then reserve the two lower floors for rent. At first, also, the stacks would have been confined to the northwest corner of the lot, leaving the street fronts of these floors also free for renting.

This northwest corner, since it has insufficient light for other purposes would be the logical place for the cloak rooms, toilets, etc., but its use is barred by the fact that they must be near the reading rooms so that the building would have to be carried at once to its full height at an expense for waste space not justified by the returns. The architects have adopted, therefore, a suggestion of my own and have placed these utilities on a mezzanine floor in the center of the building between the two reading rooms. From this floor short and easy flights of stairs lead up and down to the reading rooms. That going up is monumental in character and lands the reader immediately in the catalog and delivery room. The elevators will stop for



THIRTEENTH FLOOR

JOHN CRERAR LIBRARY



ELEVENTH FLOOR

readers only at this mezzanine floor, thus securing better supervision, quicker elevator trips, preventing the carrying of wet wraps and umbrellas into the reading rooms, and, not a small consideration in Chicago, inviting all to wash hands before using the books.

Unfortunately when the eighth set of plans, for about two-thirds of the entire building, was submitted to the contractors in July, 1919, the bids were so high (nearly \$2,000,000) that the directors felt that the library could not afford to carry them out. Accordingly a new set was prepared for about 50 per cent of the larger building, and approved, and estimates were secured in October of that year. The bid of the George A. Fuller Company was accepted and work was begun at once. If conditions had been normal there is no reason to doubt the completion of the building at the time set in the contract, July 1st, 1920. But conditions have not been normal unless we are to consider them as a new normal.

Strikes in the coal, steel and cut stone industries and gross failures to comply with the terms of the contract on the part of the sub-contractors for hardware and electric fixtures would have in any case delayed the work six months. The greatest delay, however, was in the stack floors and for this the Fuller Company was directly responsible, for they failed to test samples of the slabs, and allowed the sub-contractor to furnish one-half the number before ascertaining that they were not satisfactory to either architects or owner.

The building occupies an area of about six thousand square feet in the form of a square with a shallow L on the northwest. This L contains the elevators, stairs, smoke stack, and ventilating flues. The book carriers are in a much shallower projection on the north, so that the square is entirely free for library or renting purposes. The height is two hundred feet, the full height allowed by the city ordinance at the time the plans were made. The foundations and columns, however, were made strong enough to carry four more stories, if it should seem advisable to add them. It may be called a fifteen story building with basement and attic, but the statement needs qualification. Two of the regular floors have been omitted and four stack floors inserted in place of them, while on the Michigan Avenue half the thirteenth and fifteenth floors have been omitted and the space added to the height of the reading rooms. The main reading

room, on the fourteenth floor, is twenty-eight feet high at the center of the arch, and the lower reading rooms are twenty-four feet high. Thus there are on Michigan Avenue fifteen floors and in the rest of the building seventeen. Of these the Library will occupy all but five floors and one-half of the basement.

The foundations are twenty-eight concrete piers, eighty-four feet deep, reaching to a very hard stratum immediately above the bed rock. The columns are steel covered with concrete. This covering is a better protection than tile and occupies less space. By experiment in the temporary quarters it was determined that for a library having a large proportion of quartos and folios the bracket type of stack is far more economical than the standard type and that with this the minimum distance between centers should be four feet six inches.

As the standard makes of shelving come in three foot lengths it is evident that a spacing of the columns eighteen feet each way would make possible running the stacks most economically either east and west or north and south as might be desired. This spacing is also a very convenient one for the use of structural steel. The excess of length north and south is thrown into the outside sections to secure better floor space in the stores, offices and library workroom and the deficiency east and west is concentrated in the middle section, giving by the omission of one row of stacks a wide central service aisle.

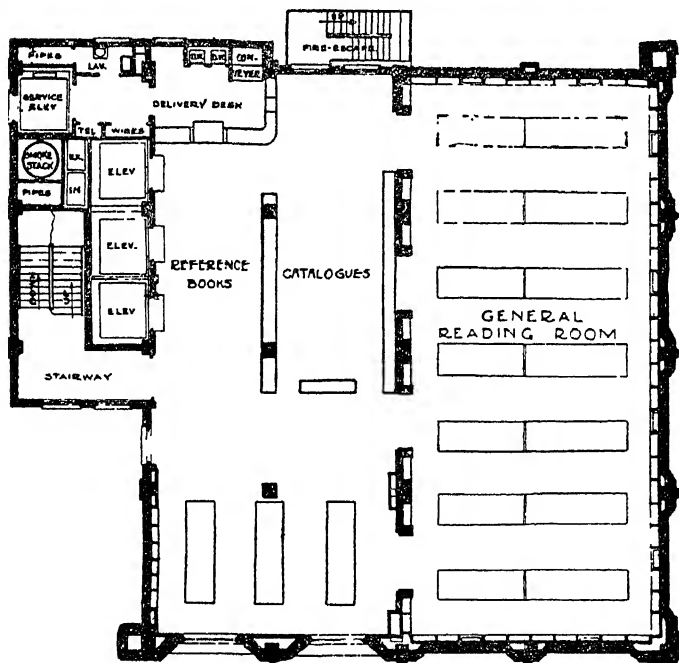
The floors are tile arches covered with cement, and this with *tutti colori* (art marble) in the corridors, all the base sections are art marble; the floors in the lobbies and other display portions are covered with art marble, with cork tile in the reading rooms, and with cork carpet in the offices and work rooms. The permanent outer walls on the street fronts are of Bedford stone and when the permanent north and west walls are built they will be of the same material. The style is a modified Romanesque, which seems to be admirably adapted to library purposes, especially in a high building. The horizontal, not the vertical lines are accented, and these lines indicate the different uses of the floors.

It has been stated that the temporary quarters served as an experimental laboratory for the determination of the best type of stack (in all a dozen were tested) and of the narrowest aisle width permitted. They also permitted the determination of the best type of lighting fixture. From more than a score, the

"duplexalite," a semi-indirect system, was selected by common consent of the staff, and this selection has been confirmed by experience.

The matter of ventilation is of primary importance and here the decision appears to be satisfactory on grounds of economy and efficiency. One large fan ventilates the engine room, basement and the building as a whole, as an office building of its size requires. A smaller fan ventilates the reading rooms either by exhaust alone, allowing fresh air to enter by the windows, or in very cold weather by both exhaust and intake thru heating coils. A third and small fan ventilates the Class Room alone.

The arrangement of the work space for the library staff is also unusual. The whole of the tenth floor is given to them. Each member of the staff has a window with room enough to



FOURTEENTH FLOOR

arrange her desk at any angle desired. Between each pair of workers is a book case four feet high and twelve feet long. These furnish convenient storage space and a considerable degree of privacy. Inside these working spaces is a three foot aisle, thus accounting for the outer row of bays on the northeast and south side of the room. The interior bays are occupied on the east, which have good daylight, by the official catalog, and in the middle by provision for supplies, arrears, books in process, and reference works.

A comparatively new type of windows, the so-called austral windows, have been installed here and quite generally thruout the building. These open in the middle before opening at top or bottom. Each sash carries its own shade. The ventilation resulting from their use is very satisfactory. The arrangement of the staff is such that the books make but one trip around the room. In every respect this working space has met expectations, and I do not know of any better elsewhere.

A notable economy was secured by using reinforced concrete slabs for the stack floors. The saving was about two-thirds of the cost of marble or glass. I am inclined to think it will be desirable to give them a coating of cement paint but so far our experience with them is quite satisfactory.

One other unusual detail may be noted. In the reading rooms the shelves are literally wall cases, being set in the walls. This was done primarily to secure deeper reveal of the window openings, without diminishing the floor space. Novel and useful as the feature is it usually has to be pointed out to visitors.

I wish that I could speak with as much enthusiasm of the provisions for the readers as I have of those for the staff. The reading rooms are dignified, perhaps beautiful, convenient in arrangement, spacious as to height, but not large enough. Moreover, the wide separation of the books from the delivery desks militates against effective service. If the book lifts and conveyor work as they ought, unfortunately still an open question, this last may not have a serious effect. And of course the deficiency in space was recognized as inevitable when it was decided to build only one-half of the building which had been planned.

The demolition of the old buildings was begun October 10th, 1919, the foundation completed by the end of the year, the frame erected by April, 1920; and the building transferred from the contractors in January, 1921. The delays already mentioned

prevented the practical completion until May, 1921, and it was dedicated with suitable ceremonies on May 28th. The cost, fully equipped, has been about \$1,400,000 or about one dollar a cubic foot. It is hoped that those who see it and use it will confirm the belief of the directors that it meets the desire of the founder that it should be "tasteful, substantial, and fireproof."

THE PIERPONT MORGAN LIBRARY

Tho not describing it in detail this brief picture expresses the atmosphere of this magnificent collection, especially the perfect fitness of the building, which was erected in 1907, and presented to the public in 1924.

Appearing as an unsigned article in *Publishers' Weekly* it came from the pen of Frederic G. Melcher, a lover of books.

Frederic G. Melcher, vice-president of the R. R. Bowker Company, was born in Malden, Massachusetts, 1879. He has been co-editor of the *Publishers' Weekly* since 1918, and is director of the National Association of Book Publishers. Mr. Melcher originated Children's Book Week, and established and endowed the John Newbery Medal awarded each year by the American Library Association for the most distinguished contribution to children's literature.

A prominent American architect, when asked a few years ago what building in America he would rather have designed than any other, answered without hesitation "the Morgan Library." This beautiful building, renaissance in style, the masterpiece of Charles McKim, is now made a public institution thru the gift of the present J. Pierpont Morgan, and its great collection of books and art objects is to be perpetually available for public use under the direction of trustees with proper safeguards against abuse of such material.

The building is on East Thirty-sixth Street, just off Madison Avenue and in the rear of the brownstone house of Mr. Morgan. Passing the bronze fence and beautiful gates, one enters an arched portico which leads into the noble entrance hall, and then, turning to the right, one finds the main library, a room that leaves almost breathless any lover of books, first, for its own beauty of design and decoration, and, secondly, for the

marvelous collection of books that is gathered together in it. In a fireplace against the east wall burn large logs as in the library of a home, and above the fireplace a magnificent tapestry neutralizes the lofty height of the walls.

The bookcases rise to a height that necessitates two balconies, and the books are shelved behind open grill work, with some special volumes in exhibition cases on the floor. The scope of the collection can hardly be realized, tho one should spend days going from shelf to shelf. Of illuminated manuscripts dating from the sixth to the sixteenth century, there are 530 volumes, to give one instance of the proportions of the collection; 905 manuscripts of works by American, English and Continental authors; about 7,000 important letters and documents; 60 volumes of Coptic manuscripts, one of the most important finds that explorers have made in this century, and translated at the Vatican; there are examples of Greek and Egyptian papyrus dating from the third century before Christ.

Coming to printed books, there are shelves of incunabula, books from the origin of printing down to 1500; an extraordinary collection of the books of the Aldine Press during its century of existence; there are Missals, Bibles, Testaments, Prayer-books, Books of Hours almost without end, and all are the finest examples in the field; there is a great collection of English literature, dating from the first printings in 1475. There is an extraordinary collection of fine bindings, including beautiful specimens of every type of work, even to jeweled volumes.

Among the very famous manuscripts are the "Huntingfield Psalter," written and illuminated in England about 1170, the "Wind-mill Psalter," England, about 1280, the "Tiptoft Missal," English, about 1332. There are over 200 French Bibles, Psalters, Gospels and Service Books, dating from the eighth to the seventeenth century, including the "St. Louis Bible," the only known complete manuscript of the Bible in French of the thirteenth century.

There are ten manuscripts of "The Romance of the Rose," dating from the fourteenth century; the Paternoster of Anne of Brittany, containing her portrait on every page; the prayerbook of Emperor Charles Fifth, containing his portrait, arms and special prayers; four manuscripts of Dante's "Divine Comedy," dating from the fourteenth century.

The Morgan Library copies of the "Gutenberg Bible" are famous, copies on both vellum and paper. They also have the

only specimen in America of the earliest dated piece of printing, the Indulgence, dated 1455, of Pope Nicolaus Fifth, issued to such persons as should contribute money to aid in the war against the Turks. The Morgan copy of the great Psalter of Fust and Schoeffer is on vellum and bears the date 1459. There are fine examples from the press of Coster in Haarlem, by some credited as being the inventor of printing.

The first edition of Dante, 1472, is the only complete copy known, and the Cicero of 1465, on vellum, is the first book printed in Italy, and is of extreme rarity. There is also a vellum copy of the Aristotle of 1483. This book was beautifully illuminated by a Florentine artist, and has been described as the most magnificent book in the world. There is also a magnificent illuminated copy of Jenson's "Augustinus," 1475, and an illuminated Livy, 1470.

A complete showing of Aldine Press books runs to over 500 volumes, the largest collection in the world except that of Lord Spencer, now the property of the John Rylands Library at Manchester, England. The collection of Caxton is the largest in private hands and includes the only known perfect copy of the first book printed in the English language; the "History of Troy," printed at Bruges in 1475 by Caxton; also only known copy of the first edition in English of Malory's "Mort d'Arthur," 1485. There are 60 volumes from the press of Caxton's successor, Wynken de Worde.

While the main room contains the large coordinated collection, the room across the entrance hall is no less interesting. This room is a combination in effect of a quiet private library and gallery of masterpieces. On the walls, on the tables and in cases are supreme examples of painting, sculpture, book-making, binding, furniture, the very finest examples in every field, culled without regard for cost from every nation. This is the room in which the elder Morgan and his son have found their own personal enjoyment of books, and is one of the most beautiful rooms that an architect has ever planned.

In one corner of the room opens the door to the safe, in which are kept the invaluable group of autographed manuscripts and autographed letters whose value it would be difficult to calculate. In order to realize how famous are the inclusions in this vault one has but to mention that here is the original of "A Christmas Carol," of Lamb's "Dissertation on Roast Pig," of many of Whitman's poems and letters, of Byron's "Corsair,"

Keats's manuscripts, etc. The safe, which has shelf room for a great deal of material, is completely lined with such material which, to be able to touch, is an inspiration to any reader and lover of literature.

A collection of such extent can hardly be visualized, as any one item out of a thousand would be a treasure in an ordinary private collection. This great coordinated group of books will be of extreme value to scholars, and it will also be of great and permanent interest in the publishing and book-making world, as it provides in this country an opportunity to study the progress of man's effort to record his thought in writing and in print. Such a collection housed at the center of American publishing cannot but have a stimulating influence on fine book-making, as everyone interested in this field can have an opportunity to study these volumes and draw from them inspiration for new enterprises. For several years past local exhibits of fine printing have been enriched by loaned examples from this collection, and the deed of gift provides that the trustees may continue to loan from the collection for the purpose of exhibits, etc. It is also provided that the trustees may provide for lectures, exhibits or instruction in connection with the institution, as they may deem desirable. They may also provide for the reproduction by printing, photography or otherwise of any portion of the collection in their hands and for the publication and distribution among libraries, museums, universities and other institutions and among individuals of the reproductions so made.

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THE WILLIAM L. CLEMENTS LIBRARY OF AMERICANA

Library buildings designed to house rare and valuable collections for the sole use of a limited group are not numerous. The John Carter Brown Library is a distinctive example, but the exterior and interior perfection of the Clements library here described seemed to call for its inclusion as representative of the type. Accompanying the description by Dr. W. W. Bishop, a sketch of whom appears in Volume IV of this series, is the introduction to the volume in which it appeared.

INTRODUCTION

In May, 1921, William L. Clements entered into an agreement with the Regents of the University of Michigan to give his library of Americana to the University, and to provide a building to house the books and to afford facilities for their conservation and use.

The corner stone was laid on March 31, 1922, with simple exercises. An address was delivered by William Warner Bishop, Librarian of the General Library of the University.

Mr. Clements and the Regents, in December, 1922, entered into a definitive Gift Agreement setting forth in detail the conditions under which the William L. Clements Library of American History should be received by the University and should perform its functions.

The Library Building was dedicated on June 15, 1923, the exercises being held in Hill Auditorium. Representatives were present from thirty-seven colleges, universities, and libraries. In addition a number of Mr. Clements's personal friends came from Bay City and elsewhere.

The University gave a luncheon on this occasion to the official representatives and to the friends of the donor, at the Michigan Union, at which the President of the University wel-

comed its guests, and George Parker Winship, the delegate from Harvard University, responded on their behalf.

After the exercises of dedication in Hill Auditorium, the library building was open for inspection, and was visited by the guests, many members of the Faculties, and large numbers of Alumni attending Commencement.

The addresses at the laying of the corner stone, at the luncheon, and at the dedicatory exercises are printed here, in the hope that the principles laid down by the donor, and the desires and aspirations expressed by the other speakers, may serve as a guide to the use and growth of the William L. Clements Library of American History at the University of Michigan.

THE LIBRARY BUILDING

Three views of the building are given in this volume: a general view of the exterior, a view of the Main Room, and a picture of the Rare Book Room or Treasure Room.

The Library was planned by Albert Kahn of Detroit, carrying out the detailed specifications drawn up by Mr. Clements. Mr. Kahn is the architect of the General Library and of many of the other University buildings, as well as of numerous notable structures in Detroit and elsewhere. Mr. Kahn personally drew the basic designs for the structure, and has overseen the furnishings and fittings. His keen interest in the building and its peculiar problems has been most fortunate in its results.

The building was erected by the Owen, Ames and Kimball Company of Grand Rapids. It is of Indiana limestone. It is approached from South University Avenue by a broad terrace to the entrance loggia. The ceiling of this loggia is decorated in blue and gold, and there are carvings showing the arms of the University, of Columbus, and of Washington, over the three doors which lead directly to the Main Room. There are niches at either end of the loggia, in which statues may one day repose. The central doors are of bronze.

The Main Room, about 90 by 50 feet, which rises thru two stories, occupies the entire front of the building. It is panelled in fumed oak to the cornice, from which springs a ceiling in low vaulting. The panels in the ceiling and the border below them were painted in formal patterns by Thomas di Lorenzo

of New York. The room is lined with book cases, those in the two alcoves in the south corners being made especially deep, to receive maps and atlases. Exhibit cases are placed near the entrance doors, while the room itself has been charmingly furnished under Mr. Kahn's direction.

Opposite the entrance and in the rear of the Main Room lies the Treasure Room, with massive doors opening off the Main Room. This room is a real vault, its floor, walls, and ceiling being of reinforced concrete, while its windows are closed with steel shutters, and the doors have tempered steel plates concealed in the wood. In this room are kept the great rarities of the library, including the Shelburne Papers, the collections of De Bry, the Discovery books before 1700, the Jesuit Relations, and other works of more than ordinary importance.

A small reading room is provided in the northeast corner of the building, where books may be read under the supervision of the Custodian or his Assistant. The office of the Custodian is between the small reading room and the Treasure Room.

The northwest corner is given over to offices for the two ranking professors of American history, one on each floor. There is a separate outside entrance from the campus, leading to these rooms, which does not give access to the rest of the building under ordinary conditions. Each office is sufficiently large for a seminar or small class to meet with the professor in his study.

On the second floor, overlooking the Main Room, is a gallery, which contains a selection of modern books of reference for the convenience of the professors of history and others working in the building. There is also a large working room for the staff, on the second floor, in which are housed at present the bibliographical collections and a part of the Vignaud Library.

The basement is given over to newspapers and to photostat rooms. The newspapers are stored on steel shelves furnished by the Sneed and Company Iron Works of Jersey City. A room for the janitor, an unpacking room, and a large hallway occupy the rest of the basement.

A driveway leads to the door on the campus side of the building. Besides the ordinary service uses, this enables visitors, in bad weather or when they are invited for special functions, to step directly from their conveyance into the building. The

basement plans provide ample room for depositing wraps on such occasions.

The building is heated by steam carried in a tunnel from the central power plant of the University, half a mile away. There are thus no fires and no ashes in the structure itself. This elimination of the ordinary heating plant, combined with the fireproof construction, makes the protection against fire as nearly absolute as possible. The electric-light wires, the water pipes and the telephone wires are all carried in the same tunnel with the steam pipes.

Every precaution has been taken in the structure itself to guard against injury to the books whether by dust or careless handling. The books are all in enclosed cases, with heavy plate-glass doors. The exhibit cases are very strongly made, and the rarer books have received the special protection of the Treasure Room.

The building as a whole is handsome, and its interior is particularly pleasing. Neither the donor nor the architect has spared any pains to ensure permanent and suitable housing for the library.

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THE TORONTO BOYS AND GIRLS HOUSE

A feeling on the part of some librarians that complete book service to children demands not simply one room, but a group of rooms, and distinctive conditions, has led to experiments with a separate building. The first example of such a building in connection with a central library was the Boys and Girls House described below. It is true that Miss Hunt's Children's Branch in Brownsville, a district of Brooklyn, preceded it; but that was adapted to meet an especially congested condition and not to fit in with provision for all round library service to the children of a normal community, as does the Toronto building.

Mention must be made of what seems to be the only other permanent children's building, the beautiful one at Westbury, Long Island, built in 1924.

W. Arnot Craick, whose description of the Toronto building was published in *The Library Journal*, was at that time editor of *Industrial Canada*, the organ of the Canadian Manufacturers Association.

Since then many changes have been made, notably the addition of a children's theater.

In opening a library building wholly devoted to the interests of boys and girls, the Toronto Public Library Board has branched out along distinctly new lines for Canada.

The Toronto institution is not called a children's library for the reason that the term might be misleading, implying that the library was intended for younger children only. It has been given the more appropriate and pleasing name of the Boys and Girls House of the Toronto Public Library. Boys and girls of all ages are made welcome and on the second floor special rooms have been assigned for High School boys and girls.

The word "House" also fits in nicely with the idea because the library has been located in a former dwelling house which was taken over for the purpose. The building stands quite near

the Central Reference Library, being separated from it by a small park. Mr. Locke had had his eye on this residence for some time and this summer was able to persuade the city fathers to buy it in the interests of the rising generation. It was remodelled for library purposes tho still retaining the main divisions into rooms which, however, enables the work to be satisfactorily departmentalized.

The library merely supersedes the children's department in the Central Reference Library building and does not interfere to any appreciable extent with the children's departments in the fourteen branch libraries thruout the city. It was felt that at first there might be some falling off in the patronage accorded the library as compared with the attendance in the former children's department because of the fact that the new library was off the main thorofare on which the larger building stands. This, however, has not proved to be the case. More children are coming to the library and more books are being borrowed than ever before. In fact the capacity of the library is already taxed to the limit and the plan for enlargement which Mr. Locke has in the back of his head will have to be put into effect sooner than was anticipated if the work is to be permitted to grow.

The main floor is devoted to the circulation department and to reading rooms. The open shelf system is, of course, in use and the walls of two large rooms are filled with book cases from which selections may be made. There are two reading rooms, one for the small children and one for the older boys and girls. Here are kept all the favorite juveniles, available when required, but not to be taken away from the library. In the case of the smaller children, most of the books are kept under cover and are only given out by the attendant when the applicant can show clean hands and a disposition to handle the books carefully. Here also are displayed a wonderful map of fairyland, which is a never-failing source of delight to the little ones, and posters quoting the Goops and Brownies on the treatment of books.

Upstairs are rooms set apart for boys and girls of high school age, equipped with reference works and the finest editions of books that figure on the supplementary reading lists. The thot is that these students are perhaps a little too young and inexperienced to derive full advantage from the main reference library and that they will welcome the direct attention given to their requirements by the librarians in charge. On this floor also

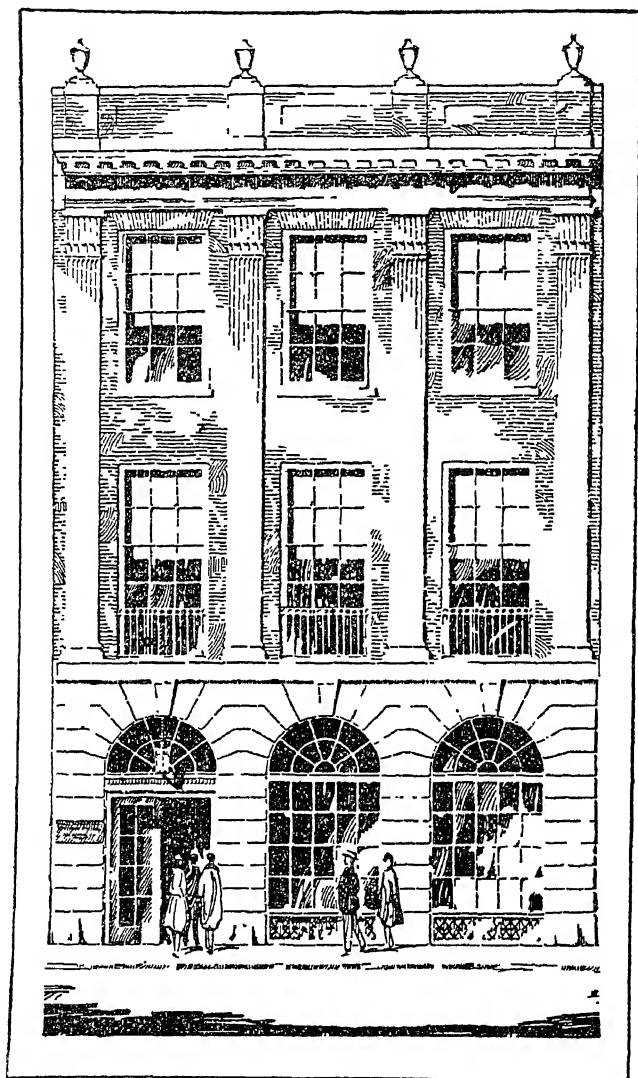
are found the apartments arranged for the use of the staff, including rest room, work room and kitchen-lunch room.

The unique feature of the library is found on the top floor. Here there has been arranged a permanent exhibit of books for boys and girls as recommended by the Toronto Public Library. These are classified into groups so that books of different kinds, suited to various ages and for boy or girl readers, may be readily picked out. The purpose of the room is to make it easy for parents or organizations interested in the selection of books for this or that purpose, to choose the titles that would be most suitable. All books published purporting to be for juvenile reading are read and passed upon by those in charge of the children's work and the library is therefore able to give helpful advice. The aim is to maintain a good all-round standard and to inspire a taste for the best in literature.

For nine years the Toronto Public Library has made a display of the season's new books for boys and girls and has invited the public to come and inspect them so that information might be given to guide Christmas shopping. This annual display has naturally been transferred to the new House of Books where it formed an interesting annex to the permanent exhibition during Children's Book Week and was visited by many people during the weeks before Christmas.

The children's story hour flourishes in the surroundings and new features in the way of reading, stamp, chess, history, geography and other clubs are being introduced. Mr. Locke has a librarian's high hopes for the children's library holding that in educating the child to read the right kind of books and to develop a love for those things that are uplifting and inspiring, he will be laying the foundations of a sound citizenship that will bear good fruit when the children of today become the grown-ups of tomorrow.

The circulation of books among boys and girls thruout the Toronto system is 550,000 and it must be remembered that Mr. Locke allows no public library books to be placed in schools or deposit stations of any kind. He does not believe in the more or less popular slogan of "Take the books to the people." He believes that nothing is worth while that does not involve some effort and he wants the boys and girls of his city to acquire and develop the library habit. Then he has no fear for their future or for the future of library work in the city or, for that matter, for the future of the city itself.



BUSINESS BRANCH; NEWARK FREE PUBLIC LIBRARY

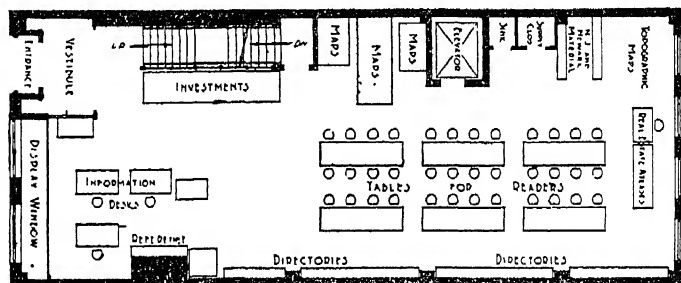
NEWARK'S NEW BUSINESS BRANCH LIBRARY

The following brief account appeared as an editorial in *The Library Journal* and is largely a quotation from John Cotton Dana, librarian of the Newark (N.J.) Public Library. The accompanying illustrations and plans show what extensive provision he made for this specialized type of work.

Newark's Business Branch which is centrally situated, has cost the city about \$230,000, and about 9 per cent of the total budget of the Newark Free Public Library is apportioned for its maintenance.

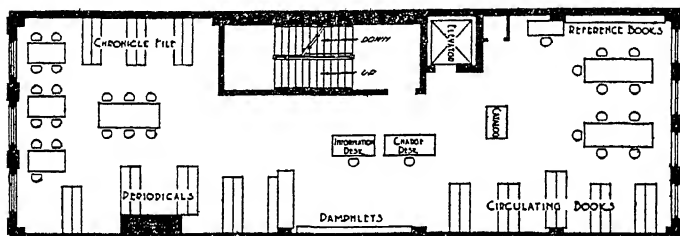
The new building designed by John H. and Wilson C. Ely is of modernized Georgian design, built of Harvard brick with white stone trim. The entire building is occupied by the branch and expansion for some years is provided for in the basement and third floors which are at present used principally for storage and for staff rooms.

First opened in a modest way in 1904 the branch twice moved into larger quarters before acquiring its new home, probably the first building devoted exclusively to a business branch.



BUSINESS BRANCH; FIRST FLOOR

"'Business runs the world. The world is better managed and more peaceful as soon as the rules of profitable business are imposed upon it.' I wrote that many years ago," says John Cotton Dana, Newark's librarian for the last twenty-five years, "and I realized then that if a public, tax-supported institution like a public library were established to promote intelligence, social effectiveness and good will, it should devote much of its energy to helping those who support it and use it to learn more about every aspect of business, from skill in the simplest form of bookkeeping to knowledge of the resources and the commercial methods of peoples in the remotest corners of the earth.



BUSINESS BRANCH ; SECOND FLOOR

"Hence the Business Branch of the Newark Public Library.

"The unfortunate conservatism of the public library, an institution that is by nature static, has prevented more librarians from accepting the doctrine that business is of the deepest interest and of the most fundamental importance to all mankind, and from assuming the duty of serving business which that doctrine imposes.

"But from the field of business itself has come an insistent demand for all the aid that the art of librarianship, the mastery of print, can give. In this country now we find several thousand libraries devoted almost solely to the promotion of business wisdom."

HEATING, LIGHTING AND VENTILATION OF LIBRARIES

The first feeling of concern over the problem of heat and ventilation in libraries was not in the interest of the users as is largely now the case, but for the protection of the books. Large proportions of the collections were books in leather bindings, and these were rapidly deteriorating. This was at first thot to be due to the use of gas, as indicated in the following quotations from *Chemical News*, volume 36, 1877, in which Professor A. H. Church says:

"The injurious influence of the products of combustion of coal-gas upon the leather binding of books is only too well known. Vellum seems unaffected; morocco suffers least; calf is much injured, and Russia still more so. The disintegration is most rapid with books on the upper shelves of a library, whither the heated products of combustion ascend, and where they are absorbed and condensed. By comparing specimens of old leather with specimens of new, it is quite clear that the destructive influence of gas is due mainly to its sulphur. True there are traces of sulphates in the dye and size of new leather bindings, but the quantity is insignificant, and there is practically no free sulphuric acid. That leather may be destroyed by the oil of vitriol produced by the burning of gas in a library is proved by the following observations and analyses:

"The librarian of one of our public libraries forwarded to me the backs of several volumes which had been 'shed' by the books on the upper shelves, in an apartment lighted by gas. The leather of one of these backs . . . was carefully scraped off so as to avoid removing any paper or size from beneath. This task of

scraping was easy enough, for the leather was reduced to the consistency of Scotch snuff. On analysis of the watery extract of this leather the following figures were obtained:

	PER CENT
Free sulphuric acid in decayed leather. . . .	6.21
Combined " " " " "	2.21
Total	8.42"

To such reports on the examination of leather bindings which have deteriorated, Mr. F. B. Perkins of the Boston Public Library adds the following:

"To Professor Church's list of different kinds of leather may be added sheep, which is affected by coal-gas at least as much as calf or Russia. The condition of many volumes, which have been exposed to the influence of coal-gas in the Bates Hall of the Boston Public Library for a considerable number of years, is such as apparently to corroborate these statements. I say apparently, because no chemical analysis has been made here. But many sheep, calf and Russia bindings in this library are in the pulverizable condition mentioned by Professor Church, and this spoiled leather is filled with some very strong acid, harsh to the teeth, and altogether different in quantity and quality from the faint traces of acid sometimes remaining from the processes used in dressing the leather. It is obvious that, when the unavoidable future transfer of the Boston Public Library to a new and scientifically-planned library building shall take place, the total exclusion of coal-gas from the building will be indispensable. The saving which such exclusion would already have made, by preventing deterioration in bindings during the twenty-five years' existence of this library, amounts, by two independent estimates, to not less than \$5,000, and probably to \$10,000. There are harmless kinds of gas, which can easily be used instead of coal-gas."

Very soon it was decided that heat rather than gas constituted the danger and from this time on every effort was made to so build and ventilate that excessive heat, especially in the upper part of the building, would be avoided.

A survey of leading present day libraries to determine the extent to which conditions of storage may be responsible for deterioration of records and other material stored in libraries, has just been made and published by the United States Bureau of Standards (Miscellaneous pub. 128 October 1931) indicating that twentieth century science is still concerned with the problem.

HEATING LIBRARIES

A comparative table showing Dr. Melvil Dewey's estimate of the five methods of heating then in vogue has been selected as the best statement available for the early period. It was presented at the Washington Conference.

I designed at this meeting to present the results of some studies on heating, rather to excite new interest and give direction to general experiments and observations during the coming year than to submit final conclusions. Lack of time compels me to omit most that I had planned to say, and I will print in *The Library Journal* a tabular exhibit of my present opinions. This table will be found a great convenience as a skeleton in which each may fill in the results of his own experience. The brief notes in my table will at least provoke thought and discussion, and at the Cincinnati meeting I trust the subject will have an exhaustive treatment that may practically settle it for librarians. Explanations follow the table.

My study leaves me a decided preference for steam (if the right apparatus is used), and after it for the "fire on the hearth," or open ventilating stove. The least desirable means of heating is the most common, the hot-air furnace. I will only take time to urge every member to make careful observations during the coming year, and to get all possible light on this very important subject for our next meeting.

In my table which follows I have lettered the various points to be considered in an apparatus a to l, and across the tops of the pages numbered the various methods of heating 1 to 5. I have omitted high-pressure steam, gas, and similar possible methods, which no one would think of using for a library, and also hot water, because of its great cost. A column should, however, be added for hot water, as some look upon it as the very best method, where it can be afforded. It differs from steam chiefly in the large amount of radiating surface required, because the water is, of necessity, of lower temperature than steam, and changes of temperature are slower.

	1. Open fireplace	2. Open stove
a. Safety against fire. 5, 1, 2, 3, 4.	a1—Very safe. No smoke nor hot-air pipes. Defective flues dangerous with large fires. Sparks snap out from some wood. Coal safe.	a2—Better than close stove, as outside is not so hot.
b. Freedom from dust, dirt, gas, smoke and noise. 5, 4, 1, 2, 3.	b1—Very dusty, dirty, and smoky. Noise of fire-irons and snapping of fuel	b2—Less than 1, but bad. Noise added.
c. Quality of heat. 1, 2, 5, 3, 4.	c1—Best. Direct radiation from flame. Like heat of sun.	c2—Next best. This is part 1 and part 3, and combines their qualities.
d. Influence on ventilation. 1, 2, 5, 4, 3.	d1—Best known if properly combined with air supply.	d2—Little inferior to fireplace.
e. Ease of distribution to different rooms, or parts of rooms. 5, 4, 2, 3, 1.	e1—Practically impossible to distribute.	e2—Circulates air in same room best. Can heat room above with dummy.
f. Space occupied by apparatus, 1, 2, and 3 being in each room. 5, 4, 1, 2, 3.	f1—More than furnace or steam.	f2—Same as stove.
g. Economy in fuel. 5, 3, 2, 4, 1.	g1—Least. Costs most for heat given. Chimney sucks life out of the fire.	g2—Good. Little inferior to close stove. Four times the fireplace.
1. Ease of running, 1, 2, and 3 being in each room. 5, 4, 3, 2, 1.	h1—Hardest.	h2—Harder than stove 3. Easier than 1.
i. Ease of keeping in order. 1, 5, 4, 2, 3.	i1—Easiest.	i2—Next to close stove, hardest.
j. First cost. 1, 3, 2, 4, 5.	j1—Cheapest if built with building. Otherwise costs most	j2—Cheap.
k. Durability. 1, 5, 2, 3, 4.	k1—Greatest.	k2—Next to fireplace and steam.
l. Appearance 1, 2, 5, 4, 3.	l1—Best.	l2—Next to fireplace.

3. Close stove	4. Hot-air furnace	5. Low-pressure steam
a3—Smoke pipes set many fires.	a4—Worst. Hot-air pipes set most fires.	a5—Safest. With right apparatus explosions are impossible or harmless.
b3—Same as b2.	b4—Gas, dust, and noise. Hot-air pipes are simply great speaking-tubes to carry every sound.	b5—Nearest perfect. Poor piping will cause great noises; but it is noiseless when properly put in.
c3—Apt to be bad.	c4—Usually worst. May be improved, but heat rays, not hot air, is best.	c5—Direct radiation. With proper attachments can be made best.
d3—Worst.	d4—Usually very bad. Can be made fair.	d5—Usually bad. Can be made best.
e3—Worst except 1.	e4—Easiest except steam-pipes. Take room and are dangerous.	e5—Best known. Small pipes go anywhere and cannot set fires.
f3—Most.	f4—Least except steam.	f1—Vastly least. Boiler smaller than furnace, and pipes much smaller.
g3—Good.	g4—Worst after fireplace.	g5—Best for large rooms or buildings.
h3—Easiest in each room.	h4—Easier than 1, 2, or 3 in each room.	h5—Same as h4.
i3—Hardest. Linings, pipes, drafts, etc., need frequent care.	i4—Easiest after fireplace.	i5—Same as furnace.
j3—Cheapest.	j4—High.	j5—Costs most.
k3—Greater than furnace.	k4—Least.	k5—Greatest except fireplace.
l3—Worst.	l4—Bad.	l5—Good.

I have assumed to give, in a somewhat dogmatic way, my own opinion of the relative merits of each system, by arranging the numbers after each point. E.g., after point a, the figures 5, 1, 2, 3, 4, indicate that no. 5 or steam is safest, and no. 4 or furnace, least safe, and 1, 2, and 3, are safe in the order as arranged. The numbers refer to the various systems of heating. For convenience of making notes and references, I have numbered squares as signed to each point under each system. E.g., j 2 is the topic of first cost of the open stove; a 5, is the safety of steam. I hope my table, and the fact that this is to be a leading topic at Cincinnati, will give rise to much correspondence this year, and in it the numbered topics of the table will be found very convenient for reference and for tabulating results.

I purposed printing the table with the squares blank, reserving my own opinions for further study, but the editor has thot it more useful to give my present notes as suggestive. I may wish to change some of them next year in the light of new investigations. These are made after personal experience with all the systems and observations of all the points, and after consulting something over 100 users of different systems. But in a multitude of counsellors, there is safety, and the opinions of 500 may change some of my conclusions, in spite of personal experience.

In order to get library data on heating from which to work at Cincinnati, I urge each interested to send to the editor of *The Library Journal* answers to the following points:—

(1) Wood, brick or stone; (2) Sides exposed; (3) No. of windows and doors; (4) Hight of ceiling; (5) Cubic meters or feet warmed; (6) Temperature in cold weather; (7) Method of heating; (8) No. tons and kind of coal used; (9) What changes if building new; (10) Remarks.

A little consideration will show that unless all the questions are answered, the facts will have little value. By tabulating the results we shall discover some important facts of practical value to us all. Fairness demands that each contribute his experience to the common fund. Those who have not all the necessary facts now can test the question during the next winter and report before the meeting of the A.L.A.

ELECTRIC LIGHTS

The arrival of the incandescent light was an event of moment to libraries.

Its installation at Columbia in 1883 is a bit of interesting history told by Dr. Melvil Dewey, then the librarian. It is followed by mention of the experience of a number of other librarians as related at the 1885 Lake George Conference.

Mr. Dewey: In '73, when we came to the question of lighting our building, tho gas-pipes were all in place, we feared the bad effects of gas on the books, and dreaded the heat and products of combustion given off. Our trustees are very careful, conservative men, and when the electric light was recommended they ordered a searching investigation by professors. As a result of thoro examination, it seemed clear that the Edison incandescent light was the best artificial light at present known. We had the building wired, and the Edison company managed, without disfigurement, to get wires wherever wanted, tho our walls and floors and partitions are all fireproof. The problem of library requirements was new, and we had to work it out. The eminent oculist, Dr. C. R. Agnew, is one of our most active trustees, and gave his supervision to our experiments with a view to getting the best possible light for readers' eyes. I will say nothing of the regular machinery, which we can all see in operation here in this hotel. All understand that the turn of the key gives perfect light or shuts it off instantly; that the lamp is an air-tight globe, so there is absolutely no contamination of the air, however many lights are burning; that the tongue can be safely touched to the wires, thus showing how free it is from danger; that switches can be cheaply placed wherever wanted, so that entire rooms or parts of rooms can have their lamps lighted or turned off with a single touch at the switch. There are hundreds of styles of fixtures, chandeliers (or electroliers, I suppose I should say), suited to all kinds of rooms and peculiar wants.

Some special things we had made for our library. In our stacks a narrow oak strip was laid on the tops, crossing each aisle at short intervals. From these we hung a flexible cord with a lamp on the end, and two light chains or cords, with balls on the ends, hang beside the lamp so that it can be turned on or off, as one passes thru the aisle, without stopping. If these lamps are hit by the head of a tall person, or as one steps up on the stirrup to reach the top shelf, no harm is done. It simply swings like a pendulum. We often take the lamp in the hand like a torch and put it in back of the shelves or near an imperfectly lettered book, thus using it as a lantern. This plan is used over the tables in our private reading rooms on the fourth, fifth, and sixth floors. Here a paper shade protects the eyes, and, when the lamp is taken in the hand, serves as a reflector to throw the light on neighboring shelves.

To light the shelves we have standards in the galleries, and below the galleries brass pendant rods with a lamp on the end. Here, after protracted experiments, we devised a bronze shade, with silver lining, cut in the shape of a quarter egg-shell. These throw all the lights on the backs of the books, producing the warm, ruddy look that comes from a blazing open fire, while the shade covers all direct rays of light from the eye. A reader looking up from his work sees only the backs of the books lighted. The general light is thus made singularly soft and pleasing.

It is almost literally true that we had a wagon-load of sample fixtures on which to experiment. We finally settled on inexpensive and very satisfactory fixtures. We wanted an electric student lamp on each table. Our floors were already laid in cement on fireproof arches, and how to do it was a puzzling question; but we devised the plan of burrowing thru the surface of the oak top floor, and it was not difficult to carry wires to tables wherever we wanted them. The student lamp we had manufactured for the tables is movable and adjustable up and down. The shade is simply paper, green outside and white inside, light, cheap, not fragile, like porcelain. It protects the eyes completely. The electric light costs us something less than gas; but we already had boilers and engines for ventilating purposes. I suppose it would cost more than gas counting the boilers and plant if they had to be put in, and run for light alone. If an electric main runs near a library, and no plant is

required, the cost is again reduced. Our whole experience is strongly in favor of going to the expense of the incandescent light.

Mr. Merrill¹: The cost of gas in Cincinnati is only one dollar sixty, and the Edison Company have proposed to put the light in our library, and run it for five-ninths of the cost of gas, and then we are to pay for the plant if we choose. That would cost about \$9,000. They agree to prove that we can run it at less cost than gas.

Mr. Green²: The company which introduced the incandescent light in Worcester agreed to furnish it to citizens at the same cost as for lighting their establishments by gas. It is reported in our paper that a New York company is to establish in the city a central plant, and is to do the same thing in Lowell and one or two other places in Massachusetts. They are to have the Edison light, and establish this plant, perhaps, with the object of interesting citizens, and selling their stock to them afterwards, and it is understood to be a part of their plan that they agree to furnish the Edison light at the same price that has been paid for lighting buildings with gas. I had supposed that the incandescent light would cost more.

Mr. Dewey: They will doubtless meet the reduction in gas. In New York the Edison Company recently reduced the price of lamps from \$1 to 85 cents each, and I suppose the elements of cost can be further reduced. The light is wholly satisfactory to readers.

Mr. Green: Do you know of any other library than your own where the incandescent light has been successfully introduced?

Mr. Hedge³: We have used the incandescent light in Lawrence for three years. They promised, if we would introduce it in the library, they would furnish the fixtures, and light free for three months, and then would take out the fixtures if not satisfactory. Altho we had an agent of the gas company on our Board of Trustees, the Trustees voted unanimously, with the exception of this member, to accept the offer, and they agreed to furnish it at the price paid for gas. The gas companies lowered their price, and the Edison Company lowered its

¹ Chester W. Merrill, librarian of the public library at Cincinnati, Ohio.

² Samuel S. Green, librarian of the public library at Worcester, Mass.

³ Frederick H. Hedge, librarian of the public library at Lawrence, Mass.

price. The city has adopted the Edison light, and we take our light from the main lines. I do not think any one would consent to restore the gas, and take out the Edison light. We paid \$500 for the gas, and we get the electric light now for \$400.

Mr. Green: Has anybody had a late report from the great reading room in Liverpool? They started there with the arc light.

Mr. Dewey: The arc light is so different that it should not be compared with the incandescent. Its flickering seemed to us fatal to any claims for library use. I do not think of any improvement which I could recommend in our fixtures.

PROPER LIGHTING OF LIBRARY ROOMS

Emphasis on shelving books closely in stacks resulted in a tendency to depend upon the recently acquired incandescent light in place of natural light. This William Isaac Fletcher of Amherst College considered a backward step. He presented his solution at the Fabyan House Conference.

A sketch of Mr. Fletcher is in Volume II of this series, *Library Work With Children*.

"Let there be light!" was the first creative word, and from that time to this, whoever would accomplish any work worth doing, must have light. There are deeds of darkness, and men who love darkness, rather than light; but these are evil men and deeds. Good men are children of the day, and good deeds are best done with the fullest light. And there are many kinds of work that make special demands in this line. Among them, foremost I might have said, is work with books. This has always been recognized. From the first, schoolrooms and libraries were well supplied with large windows. An ancient engraving of the library of the University at Leyden shows a room in the form of a parallelogram, fully twice the height of the bookcases it contains (which, by the way, are arranged in two rows down the room, as in our modern libraries), the upper half of the side walls being full of large windows.

Most libraries built with alcoves have had a good window in each alcove, so that the books were superabundantly lighted, the reading tables in the middle of the room taking their leavings. But with the rapid growth of libraries in recent years, and the consequent demand, especially in the cities, for economy of room, the wall space which would otherwise have been taken for windows has been preempted by shelving, and light has been introduced at the top of the room, where shelving cannot be put by any device yet known, even to the Library Bureau. But roof light has its disadvantages; and, with the advent of the

electric light, daylight has come to be at a discount with some librarians, the proposition being gravely made and entertained, to dispense with it altogether as a means of lighting book shelving. In Mr. Cutter's apocalyptic vision of the Buffalo library in 1983, he saw that there was no need of the sun, neither of the moon, to give light therein, for the electric light was there in all its glory.

It is my present purpose to answer the question, "Shall daylight be abolished?" and, answering it in the negative, to indicate how it may best be made available in rooms used for the storage of books.

The coming man, as viewed in the light of current tendencies in civilization, is not an attractive figure. It has been demonstrated by our scientific friends that he will be *sans* hair, *sans* teeth, *sans* eyesight. The coming bookworm, built in this way, will, of course, work in the library at noonday by the electric light. But, after all, are we content to let this coming man hasten his coming? Some of us hope not to live to see him. We would rather place obstacles in his way. We would study the requirements of nature, and try to reintroduce the natural man, who seems to be disappearing, rather than give way to the reign of artificialism. To this end we are putting into our schoolrooms furniture calculated to check the stooping habit, so productive of myopia. Medicine is being reduced to a system of nature-aiding; and the remedies of nature, so finely set forth by Dr. Oswald a few years since, are the coming pharmacopeia. That which is natural, which smacks of out doors and the clear sky, is recognized as more wholesome for both body and mind than the artificial, even tho some of our devices "beat natur' all holler."

This temper of mind prepares us to demand daylight in our libraries, as being worth the sacrifice of other apparent advantages. We may well say, "Give us daylight, even if we have fewer books, or have to travel farther to find them." After all, it is to compactness of storage that daylight has generally been sacrificed, and this needlessly. It might as well be frankly confessed here, that this paper is but another plea for a certain method of library construction; namely, that so ably advocated by Dr. Poole, and now so well exemplified in the new building at Yale University. Approaching it from our present point of view, we recognize in this construction the ideal method of

lighting book shelving. It furnishes light in the form in which it is most useful; namely, in a diffused form. Large side windows let too strong a light upon the books near them, to their decided injury. Roof light is not available in the lower part of a high building, and in the upper part it is accompanied by roof heat. Floors of perforated iron or of heavy glass are only moderately translucent. In the central portion of a large stack, what do we find for light? Looking directly upwards, we see that a few broken pencils of light reach our eye from the skylight. But when these touch the backs of the books, it is only vertically, and they give little help in reading their titles. From the large side windows, light is poured in abundantly; but twenty feet away from the side of the room, one looks at the windows as a person standing in a tunnel looks out thru its mouth. Not much of the light from the entrance rests upon the side walls; or, where it does, it is so lateral that its effect is confusing, rather than illuminating. So in these passages in the stack. There may be "all out doors" at the end of the passage, but, reaching the books only laterally, it does not make it easy, a few feet away into the passage, to read their titles.

One thus comes to see that the proper lighting of shelves is not a question of the way in which light shall be introduced in rays or streams, for neither vertical, lateral, or slanting streams of light will fall upon the backs of all the volumes in closely placed cases in such a way as to fairly light them up. By only one method can this be accomplished, and that is by diffusion. And only one way of providing this diffused light between cases placed in rows has been suggested, and that is the method of construction I am advocating, by means of which an ample space above the cases is flooded with light, which diffuses itself thru the spaces between the book cases, and lights every part nearly evenly. It is not claimed that any room, even on this plan, gets a good supply of daylight in all weathers; but this is the one known way by which what daylight there is can be appropriated.

A room 60 feet wide can be well filled with diffused light by windows 6 to 8 feet high, placed at the top of the side walls as thick as they can be placed without taking out too much of the wall. In the new Yale building they are not over 6 feet high, and occupy about one-half the wall space laterally. I am

not sure, from an examination of those rooms, that the light is ample. The window area could easily have been 50 per cent greater, and then I feel sure it would be. The diffusion of the light, or, rather, its reflection downwards, is aided there, as it should always be, by white ceilings.

Of course the near proximity of other high buildings will render nugatory almost any provision for window light. But no library building of any importance should be erected without at least two sides free from the possibility of the near approach of other buildings. In the larger cities, with the modern tendency to erect much higher buildings without widening the streets, windows on the street may not be very productive of light in the lower stories. But it is being shown by the Mercantile Library building in St. Louis, and the one now about erecting for the New York Mercantile, that a half million volumes can be accommodated in the upper stories of a moderately high building. It may yet appear that the modern rapid-running elevator sets the key for city-library architecture more than any other influence whatever.

The demand for a good diffusion of light among books *in situ* on the shelves, turns to some extent, it must be admitted, on the methods of use in vogue.

If readers are confined to reading rooms, and only attendants frequent the shelves, a good light there seems less essential. Even then, however, it is very desirable for the avoidance of the mistakes so constantly occurring, where attendants get and replace books in the dark. An electric light which can be turned on at any moment is only a partial remedy, as an attendant, with hands occupied, will often work in the dark, to avoid the slight trouble of turning the button and handling the light.

But the whole idea of library books being stored away in places whence they are to be brought to readers one or two at a time is falling into discredit. In the reports of some college libraries, special emphasis is, nowadays, laid on the increase, year by year, of admissions to the shelves. In many of the public libraries, while the general access of the public to the shelves is not that of, provision is made for those specially needing such access for purposes of study to have it. More and more students perceive the value of, and demand, opportunities for the use of books where they stand. Especially is this

true if the classification is what it should be, and one can expect to find together the books on a given subject.

If I am not mistaken, the genius of our public-library system, as so well set forth by the remarks of Senator Patterson at the opening of this conference, favors this idea of access to the book shelves for the student. It is safe to predict that there will be a constant increase of shelf use of our libraries, and to assert that it is a mistake to erect a new library building regardless of the exigencies of this use. One of the first of these exigencies is abundant and well-distributed light. Another is room to work among the books. These combine to protest against an excessive economy of room in library buildings. It ought to be accepted as an axiom in library architecture, as in all other, that room can be provided for all necessary purposes. When so necessary purposes as good light, comfortable temperature, and decent ventilation demand room, they can have it, whether in dwelling, school, or library.

VENTILATION OF LIBRARIES

A statement of the principles of ventilation from the medical viewpoint as held in 1879 is found in the following article contributed to *The Library Journal* by David Francis Lincoln. Dr. Lincoln was graduated from the Harvard Medical School in 1864, studied also in Vienna and Berlin universities, practiced in Boston, lectured at Hobart College, Geneva, N.Y., and returned to Boston where he died in 1916. He was active in medical and social science organizations, was author of *School and Industrial Hygiene* and several other books and magazine articles.

I have been requested to say a few words about the ventilation of libraries, with especial reference to that of the building in which we now are (that of the Boston Medical Library Association).

The general principles and methods of ventilation are now tolerably well understood. Not to delay you too long upon these, I will only observe that they are designed to secure the following advantages:

1. A comfortable temperature.
2. An equable temperature.
3. A sufficient supply of fresh air.
4. Freedom from uncomfortable draughts.

The sedentary scholar needs warmer air than the mechanic who stirs about at his work. But I believe the absolute temperature to be of less importance than that he should have his head kept cool and his feet warm. I will, therefore, pause to remark that the use of open fireplaces as the sole means of warming the air of a room is objectionable, unless the room be situated over another, which is well warmed and imparts heat to the floor above. An open grate is extremely apt to leave the lower layers of air in a room cold, and the same may often be said of stoves.

In regard to draughts of air, we know that they are usually pleasant in summer, or at least are easily borne, if not too strong. But in winter we cannot bear the admission of the outer air, so that we cannot then ventilate a room properly by its windows, unless it be a large and lofty one, with nooks in remote places where air can come in without endangering human life. Such conditions as to space and form are not likely to be found in rooms where any considerable number of persons are gathered for reading, or for receiving and returning books. We may open a window here and there in a large and nearly empty hall—we dare not do it in a crowded room, in winter. In summer, the air comes in already warmed; in winter, it must always be warmed before it enters, with the exception of a small amount which may with advantage be suffered to enter thru slight cracks between upper and lower sashes, or thru the so-called Maine ventilator, or some analogous arrangement.

It would lead me quite too far if I were to speak of the comparative merits of furnaces, steam and hot water, as means for warming a room. But let me here repeat my statement, that nearly all the air required in winter must be warmed before entering the room; and to this statement let me add, by way of corollary, that the employment of stoves, hot-water pipes, or steam pipes, in such a way that they do not heat any incoming fresh air, is absolutely unscientific. Every heater must be at the same time a source of fresh air.

To this statement let me make an exception in the case of vestibules and halls when they are exposed to frequent gusts of fresh air. Another exception is admissible in the case of a very large room, which can be thoroly aired in the morning and evening, and is visited by very few persons, as is the fact in the new portion of the Harvard College Library, a little occasional opening of windows being sufficient during the day to keep the air practically fresh. A very large amount of air also will enter any building thru the crevices, and even thru the masonry of the walls, if the building stands freely exposed to the winds, as that library does.

But neither windows nor crevices are in the least adequate to ventilate a room where a crowd sits. The older portion of the Harvard Library furnishes an instance of this. From forty to a hundred students are commonly at work at the tables in that hall. The air comes in by the windows, while the heat

is furnished by steam radiators in the central part of the floor; the air is stifling, and yet the draught is troublesome.

Let me give another instance of bad arrangement, illustrating another way in which draughts may originate. I mean from *closed windows*.

The State Library of Massachusetts is contained in a hall, around which runs a gallery with alcoves above and below. The air of the room, in contact with the windows in the alcoves, becomes in winter so chilled that it forms a continual stream which pours over the rail of the gallery and is felt in the most disagreeable way by those sitting below, creating a draught altho the room is entirely closed. It is needless to remark on the bad economy as well as the unhealthiness of such an arrangement. The difficulty could be remedied by double windows.

The products of burning-gas should always be carried off by special flues. They are not only offensive, but are believed to be positively injurious to the books. The gas always contains some sulphur, which in burning forms SO_2 , which is afterwards changed to SO_3 , and absorbed by the bindings of books. Some doubt has been thrown on this latter statement by the failure of Professor Gibbs to find SO_3 in books where gas had been used, viz.: in the Boston Public Library. The sulphurous odor, however, is distinctly perceptible both in this building and in that of the Boston Athenaeum, where gas is used in a lower story in free communication with the library. There can be little doubt of the reality of the injury to books and of its cause.

By ventilation we seek to get rid not only of human breath and perspiration, but also of a variety of ill odors. Each trade has its peculiar smell; and the trade of the book-worm has its own, most distinctly marked. How can we get rid of that musty, fusty, dusty, suffocating, mummy-like, garret-like odor of unknown origin, which haunts respectable old bookshelves. I venture to say that this is a problem little understood by those who have to do with libraries; nor will I claim to have solved it.

I once took a black walnut case of my own, which smelt dusty, and carefully washed out the interior, shelves and all. I let it dry in the natural way, and was much interested to find, when I re-applied the olfactory test, that the old smell was exactly what it was before I washed.

I owe to Mr. Winsor the observation, that when wood is thus treated, the dust is washed into the pores of the wood, unless they have been protected *ab initio* by first soaking in oil and then covering with shellac. Wood thus protected can be washed *clean*.

In the new portion of Gore Hall, planned and constructed by Messrs. Ware and Van Brunt, the amount of wood in use is reduced to a minimum, whereby not only security against fire is obtained, but the amount of odorous surface is reduced to that presented by the books themselves. In regard to the latter, it is important to keep them well dusted. Files of unbound matter collect dust very readily, and it would be well to protect them by doors or drawers.

I have no doubt that these measures will greatly reduce this evil, thereby removing a very serious cause of complaint among workers in libraries. We must learn to treat the walls, floors, shelves, and books as surgeons treat hospital wards where cases of amputation are placed.

VENTILATING AND HEATING OF THE MEDICAL LIBRARY ASSOCIATION HALL

The present arrangement is the result of a variety of corrections made upon the original plan, some of which are worth noticing for the lessons they convey. For the total result, credit must be given to a number of different persons, in particular to Drs. Chadwick, C. P. Putnam, and Billings, and also to the architects, Messrs. Ware and Van Brunt.

The plan comprises the introduction of fresh air at various temperatures at the floor level, and the removal of foul air by several apertures, some of which are at the floor level and some in the ceiling.

The back of the hall rises by several low steps, on each of which are placed benches; these lead to a raised platform in the extreme rear. The risers or upright fronts of the steps are perforated for the admission of air from a chamber beneath. Much ingenuity has been devoted to the utilization of this very limited space under the platform and steps. There is no cellar under the main floor, and the chamber for heating, which necessarily has a lower level, has to be protected by iron walls against the entrance of the tide.

There are three windows of considerable size in the front wall of the house, at the level of the sidewalk, to admit fresh air into the chamber underneath the rear platform. The opening and closure of these windows regulates the amount of air admitted for our use; there is no other supply except such as enters casually at the door and windows in the end of the hall.

Before entering the hall thru the risers, the air passes thru boxes of galvanized iron, one box for each riser. Each of these boxes contains a coil of steam pipe so arranged that the draught can be thrown in contact with the pipes, or may enter by a separate channel, according as we desire warmed or unwarmed air; or, in the third place, we may allow a part of the air to become warmed and a part to enter at its natural temperature, the mixing being ensured by a simple device.

Originally, the cold and the warm air formed two distinct layers in entering the room, the cold flowing horizontally over the step, and annoying the occupants of seats, while the hot air rose at once. The mixture of these two is now effected by the aid of a perforated diaphragm placed obliquely in such a position that the hot and the cold air strike upon it, and are (in part) deflected so as to meet and mingle before they pass thru the diaphragm.

The air thus furnished distributes itself over the hall mainly in the upward direction. But in order to ensure as thoro a distribution as possible, it is again drawn downward to its chief point of discharge, which is situated at the level of the floor in the riser of the platform on which the President sits. Thru this it passes to the base of a flue, 7 feet by 2 feet 2 inches in section, which rises thru the skylight roof of the hall.

It was expected that the gas burners which are placed in the skylight would create a sufficient draught in the flue of which I speak. But when first put in operation, it was found that the draft was not at all what was desired, and that cold downward currents were sometimes felt. The gas jets, in fact, were entirely out of the line of suction. The introduction of a diaphragm of glass, above the gas jets, has remedied this fault, and at present the working of the flue is perfectly satisfactory. The current of air is deflected in a horizontal direction, passes over the jets, and returns to the flue once more before rising thru the hood.

The skylight has a floor composed of four sashes with ground glass. When closed, these sashes diffuse the light in an agreeable manner. They also form the floor of the flue for exhausting the foul air from the room.

The amount of air required by even such an audience as the present is something quite astonishing to the uninstructed. Assuming that the hall contains about 20,000 cubic feet, and that 100 persons are present, it will be necessary, in order to keep the air in an ideally pure state, to renew the entire contents of the room (the audience *not* included) seventeen times in the hour, or once in four minutes. It is needless to say that this has not been accomplished. But those who have used the room during the winter can assure you that the result is very fairly satisfactory; that even when full, the hall has not been oppressively close at any time, nor the draughts ever uncomfortable.

A very powerful current of air escapes in the upward direction thru the spiral staircase which leads into the hall above. In summer, this current, and that thru the opened skylight, are both likely at times to be feeble. As you are aware, the rapidity with which air ascends in closed spaces analogous to flues, depends on the difference in temperature between such air and the atmosphere out of doors. Even our chimneys draw better in cold than in warm weather; and as to flues which are not artificially warmed, they will hardly draw at all in warm, still weather.

The purity of the air we are now breathing depends, therefore, on the freedom with which the breeze from the Common draws thru the ample spaces at each end of the hall; and the skylight is playing the part of a window, not of a flue.

The Boston Public Library is a very badly ventilated building. It is draughty, close, and in parts badly lighted. It was never a proper house for books; it was not built for that purpose, one might almost say. As regards ventilation, there is one glaring fault which I will mention. The worst part of the house by far is that where crowds of youths of a humble station in life, of the class that seldom wash, sit to read the monthly magazines and to wait for the books they have ordered. This part is in the lower story. It is not ventilated, except by windows and a few apologies for flues. One would suppose that of all parts this would be the one to receive the first attention. But so far is this from being the case, that the contents

of these rooms are allowed practically but one escape, and that escape is upward, thru spiral staircases, freely opened to the passage of foul air, and discharging their air into the Bates Hall.

It is harder to cure than to blame, I know. I would, therefore, refrain from further remarks upon this building, which possesses, in other respects, only the usual faults.

THE VENTILATION OF A LIBRARY

The ventilating equipment has undoubtedly been improved and perfected during the past twenty years, this statement of Ralph C. Taggart, a Consulting Professor of Heating and Ventilation of the Brooklyn Polytechnic Institute, published in *The Library Journal*, well describes conditions that still prevail in many libraries, and physiological and psychological principles that never change.

It is the general feeling among librarians that libraries are not properly ventilated. A feeling so general must contain at least elements of truth.

What are the facts? It may be said in the first place that there is probably no class of buildings in which a more honest effort to secure good ventilation is often made. The designer of library buildings is not compelled by law to provide ventilation, as is the case in some states with school buildings. He must realize, however, that he has in a library an institution which, if rightfully used, will often be crowded with occupants.

Ventilation is therefore essential, and for this reason its installation should not be left to the whim of the designer. There should be laws in each state, compelling at least as good ventilation in library buildings as is required for schools. These laws should be simple and definite in their demands. They should be so worded that the minimum amount of air to be supplied will not depend upon the judgment of any official, but will be fixed by law.

In the case of library buildings, we find that many of the rooms are filled with a mixed crowd, some of whom have an excessive tendency toward air vitiation.

The result in occupied rooms without proper ventilation is, of course, the loss of oxygen from the air and a formation of carbon dioxide (CO_2) with its accompanying impurities.

Vitiated air will, therefore, injure the lung tissue and the vitality of the body, both because of the lack of the requisite oxygen and also because of the excess of the poisonous elements in the air.

We realize these facts theoretically, and yet, because the lack of good air does not cause us bodily pain and because our senses may become dulled to the foulness of the atmosphere around us, many people will endure air of a foulness which often cannot be well described.

The breathing in of such air may be equivalent to suicide. If forced upon us, it may be equivalent to murder, and yet, taken in small doses, it is accepted by many without a word. Because numbers survive more or less of this pollution, its danger does not always impress us. Why, however, should we allow the contamination of one of the most vital of the food supplies of the body.

Air and its oxygen is as much a food as water, bread or meat. It is essential to the health and existence of the body. It is taken into the lungs from which no waste may drain away. The lungs are to some extent a *cul de sac*.

Gravity aids in drawing into the lungs whatever impurities may pass in with the air. Gravity, on the other hand, opposes to the utmost the escape of impurities, once received. The lung tissue is in many respects a delicate organ. It is one of the few organs which as yet the ordinary surgeon dare not touch, and yet we often treat it with the least consideration.

We should have fresh air and it should be pure. We should have it in every room in the library. Some of the rooms in a library require more air than others, and in these cases especial consideration should be given to the matter of proper ventilation.

The children's room in a library, after school hours, is one of the rooms that is often found most densely crowded. Reasonably good ventilation is demanded in schools, and yet school children may be found in the more densely crowded library rooms, where they stay for protracted periods without any sort of adequate ventilation.

It is desirable that children should come to libraries. An early taste for good books will last thruout one's life. It is a pleasure that cannot be taken away and one that leads to constant mental growth and improvement. Librarians realize this fact, and by their endeavors to make their libraries attractive as well as instructive they have drawn to the children's rooms such crowds as are not generally realized by the public.

The reading rooms in the evening are also rooms which are well filled and often crowded. These rooms offer to many

people a place of opportunities which can be secured nowhere else. The reading rooms should be made attractive in every way. They are a public benefaction, and one of their most attractive features should be fresh air.

These facts are well understood by librarians, and it is probably due largely to their influence and suggestion that such efforts as have been made toward library ventilation have been put forth.

There are several reasons, however, why in so many cases these efforts have not been more fruitful. In some cases you will be told that the ventilating apparatus which has been installed is too expensive to operate. This is usually attributed to the cost of operating the fans which are installed with the ventilating equipment.

It is desirable to install fans in many libraries, but the cost of the operation of the fans should be carefully considered when the plant is designed. It may be stated in general that, if the fans are installed in the ordinary medium size library, with the intention of using them for the average every-day ventilation, they will not be operated.

Fans should be used in the average library building for the ventilation of such rooms as lecture rooms or in other cases where the occasional required use of the fan will not by its cost of operation lay too much of a burden upon the running expense of the library.

Many librarians have gained the idea that good ventilation in cold weather cannot be secured without fans. This is a mistake. First-class ventilation in well filled rooms without fans is entirely possible. It is not only possible, but it has been installed in many buildings, more particularly in the case of hospital buildings of the isolated pavilion type.

Ventilation without fans in tall buildings may take so much of the floor and wall space for flues as to become impracticable.

In buildings of moderate height, however, such as is the condition in the ordinary library building, ventilation without fans is entirely feasible.

There are several important elements in such installations. The ventilating apparatus should be arranged to be cleanly. In the ordinary ventilating equipment, the ventilating apparatus is itself a dirt collector. How many librarians know what they have in their basements? How few librarians would not pro-

test, if they did know? I can hardly blame a society woman in New York City for her fixed determination not to have any air from the basement brought to the rooms of her new house. She did not mean basement air, but air from out-of-doors carried thru the basement. At first her point of view may seem foolish, and probably she may have had the idea that more or less of the air must come from the basement. But, when we know the condition of the insides of the basement flues and ducts of many heating apparatuses, it is a question whether we might not at times prefer air taken directly from the basement.

Do we realize that in some of our finest libraries the ventilating equipment consists of a mass of small horizontal flues which cannot be cleaned? In some buildings the plans of the ventilating apparatus appear in the aggregate like a collection of worms. This is wrong. All horizontal ducts should be large. They should be similar to corridors thru which a person can walk and which can easily be kept clean.

It is assumed so readily that the insides of the flues and ducts of the ventilating apparatus must be clean. The uninitiated look upon the ventilating apparatus as something mysterious. I have seen building committees and others look upon a ventilating system with such an appearance of wonder on their faces that it was with difficulty I could refrain from laughter.

The principle of ventilation is simplicity itself. The details, which often make a satisfactory apparatus, require judgment and experience. But the general scheme, the method of operation and the condition of cleanliness within all air passages should be known to every person in charge of a library. We have a right to assume that smooth vertical flues will not retain much dust, but in the case of horizontal ducts and flues the condition may be very different.

Where the air, which is to be heated, is brought from out-of-doors, it is usually carried thru ducts or flues. It is better not to use flues, but to bring the air directly into chambers in which the heaters are located. These rooms will act as dust settling chambers. The bottoms of the indirect heaters should be left entirely open, so that all that is required in the way of hoods or casing is a hood directly above the indirect heater, with a short connection to the vertical flue. A large door into the hood should be provided and placed so as to be readily opened. There should be a cold air as well as a warm air open-

ing to each vertical air supply flue, when the library rooms require ventilation. This allows a mixture of the cold and warm air to pass to the rooms in moderate weather, when a mixture is required in order to lessen the temperature without lessening the quantity of the air.

The bottom inlet to the vertical air supply flue is the place to which dirt in the vertical flue will fall. This inlet should be left entirely open. The dirt may then be readily seen and easily removed. These cold air chambers should be rooms which can be easily cleaned. They should be finished smoothly on the inside.

There should be both a bottom and a top vent outlet from the ordinary room, but in all cases the lower vent outlet should be an open enamelled outlet box. Dust in all vertical flues will then fall to this open vent box, where it can be easily seen and readily removed.

This question of cleanliness is one that has its application even where the most elaborate air cleaning devices are installed. The best of the air cleaning devices can only remove a percentage of the dust and dirt. Some is sure to collect in the flues and ducts if the apparatus is designed so as to be a dirt collector. Air-cleaning devices will also themselves become foul, if they are not given attention, and the attention required by many of these cleaners is often more than can be expected from the ordinary engineer. Where fans are not used, it may be impractical to install air cleaners or air filters, so that proper cold air settling chambers are especially desirable and should certainly be installed.

No ventilating equipment should be designed whose efficiency will be decreased by the opening of windows.

An idea has gone forth that windows cannot be opened without interfering with the operation of the ventilating equipment. This is an error, and is caused only by a mistaken judgment or an incorrect design of the ventilating apparatus.

VENTILATING AND LIGHTING

In a Council meeting of the American Library Association, Asbury Park Conference, 1916, Samuel H. Ranck, of Grand Rapids, Mich., Chairman of the Committee on heating, lighting and ventilation, was asked to conduct a question box. The result here quoted was really a summary of the principles that had been discovered by experiment, and of procedures recommended.

A sketch of Mr. Ranck is in Volume I of this series, *The Relationship Between the Library and the Public Schools*.

As some of you know, the Committee on Ventilation and Lighting has been more or less active for several years. The Committee realizes that they did not know what they were getting into when they undertook this work. I may say, in defence of the Committee, that a number of other organizations, some of them with a considerable amount of money to spend, are at work on several phases of this problem and that their conclusions have not gone any further than ours. We have been experimenting in library buildings, and getting the benefits of the results of other investigations by the Bureau of Standards, manufacturers, etc.

I will not have time this morning to go into this subject very fully. During the course of a year the Committee gets a good many letters from persons asking questions with reference to either ventilation or lighting, or both. It is a curious fact, however, that more questions come to us about lighting than about ventilation, tho the latter, in my opinion, is very much more difficult than the former. Lighting, of course, is more obvious than ventilation. I have here a few of the questions that have come to us; we will not have time this morning to take up all of the questions.

"Which is the best: direct or indirect lighting?" This is a question of relative terms. I assume most of you know what

this sort of lighting means. Indirect lighting is where the source of light is wholly hidden, the lighting effect being produced by reflection either from the ceiling or from some apparatus suspended over the source of light. Semi-indirect lighting is where some light comes thru from the original source, and some of it is reflected. It is the opinion of the Committee, I think—I have not had time to get them all together on this—that the tendency is at the present time toward semi-indirect lighting. Dr. Andrews, by the way, who is at work on the new building for the John Crerar Library in Chicago, is installing a system of semi-indirect lighting, based on very elaborate and important studies both on the part of himself and the architects. I would say that you cannot give any hard and fast answer to that problem unless you know all the elements that enter into it, and the elements are a great many, and a good many of them are engineering elements.

One of the most important things is color: color of the walls, color of the ceiling, color of the floor and of the furniture. In some rooms the color will absorb more than 50 per cent of the light, and all of these things must be taken into account. The psychological element is also a very important one. My own opinion is, at least so far as these things affect me, that the semi-indirect system produces on me a better psychological reaction. I will not have time to go into that, but it is a very interesting thing, and there are a number of cases on record of experiments where a whole institution has been adversely affected by the color of the lighting, and that by changing the color of the light or objects reflecting light very much better results were obtained in efficiency and the general happiness of the workers, reducing nervous prostration and all that sort of thing. Where there is a good deal of red, as a rule, that gets on most people's nerves.

Another question is about the kind of fixtures to install in a room of given size, with the number of outlets or lights. As I have already indicated, there are a great many elements in this. There is the height of the ceiling, since it makes a vast difference in the kind of fixtures you install whether a room is twelve feet or thirty feet high; also the kind of light. In most of the problems relating to lighting hitherto the cost of current and of operation has been the primary consideration. There are many things more important than the cost, but a lot of these

other elements that enter into this have nothing to do with cost. They are being studied at the present time, but the scientists and others in making these investigations have not come to any full conclusion.

I think we do not pay enough attention to natural lighting. When we think of lighting for reading rooms, and so forth, we mostly think of artificial lighting. Most of our cities are badly planned to get the best natural lighting results in the buildings. For instance, the orientation of buildings so that you can get sunlight into all the rooms most of the days of the year when the sun is shining: with the buildings arranged on the north and south, east and west plan at certain seasons of the year you get no sunlight in certain rooms. This is a rather new question in connection with the problem of lighting, so that if you can control the location of your building on a lot—we cannot often do that—you can help your lighting system problem very much by planning it with reference to the natural light.

Another thing we do not think of in connection with lighting—I have already referred to the color of walls, floors, windows, etc.—is the fact that at night, light leaks out of windows that are not shaded just as water leaks out of an open faucet; if you have windows properly shaded, and if you do not need windows raised for ventilation, it will make a considerable difference—a measurable difference—in the amount of light in the room if you pull down the shades and if they are of the right color. I know of rooms where there was a complaint about the lighting, and by simply putting on properly colored window shades and drawing those shades, when there was sufficient ventilation there, nothing more for the time being was necessary, simply because a lot of the light which had streamed out into the street, and into the night, was reflected back into the room.

Of course a good deal depends on the use made of the room, number of people, and so on. Here is a pamphlet on "Photometric Units and Nomenclature." It is rather technical and scientific, but any of you who are interested in this problem will find it worth while to get this bulletin from the Bureau of Standards. They have a number of other pamphlets of interest in this connection. I have been especially fortunate in this work because two of my personal friends are connected with

the lighting work of the Bureau of Standards, and they have helped me a great deal.

The new science of lighting is going to approach this problem from a scientific point of view rather than from the experimental point of view, and that means that a lot of the terms used in lighting and so on are being discarded and new terms are coming in. Most of us are not as yet familiar with these new terms and new units. When lighting is put on a scientific basis you will determine how much light you need on a square foot of surface on the reading plane—that is, the table in the reading room; and then it will be, relatively, an easy engineering problem to put in the fixtures and the arrangements to get the number of foot candles or whatever else you want on a square foot of surface. The newer study in the art of lighting engineering is going at it from that point of view, but very little in the past has been done in that way.

Then another very important element relating to this lighting proposition is the matter of the individual eye. There is a committee, I think, in France, studying the physiology of light, and one of the most interesting things that have been brought out by some of the studies on this point is that eyes in different individuals require varying amounts of light for the satisfaction or comfort of the individual. There is a difference, it seems, in different individuals of at least 50 per cent, so that the light that is favorable and satisfactory for one person to work by with efficiency for three or four consecutive hours is 50 per cent less or 50 per cent more than another person needs. For that reason in reading rooms we can never get along without a certain number of individual lights, because of the difference in the human eye. General lighting is, therefore, in my judgment, very expensive, because as a rule you have to have the whole room flooded with a quantity of light sufficiently great for what you might call the eye requiring the greatest amount of light, and that means that at certain hours of the day a large part of the room is flooded with an amount of light which is not used and therefore is not necessary.

Another very important element in connection with fixtures is the matter of cleanliness, not only from the point of view of health, which we all admit, but on account of the amount of light that is lost by dirty walls and dirty ceilings, dirty lamps—that is, the incandescent lamps—and dirty shades. I have been

in many libraries where at least 50 per cent of light is being lost by reason of the fact that things are dirty. You can all help to improve conditions in that direction, with little extra expense.

I had several more questions but the Chairman says my time has already expired so I will omit those.

I want to say a word about ventilation. Humidity and the motion of the air are being recognized in recent years as two most important factors in proper ventilation, as well as temperature. Humidity and motion are of such great importance because of their effect on the functioning of the organs of the body—the skin, for instance. I want to say we have been making some interesting experiments under the direction of a ventilation engineer in our building, and as a result of this, at a considerable saving in fuel and power for the operation of the fan we are getting a ventilation that has been very much more satisfactory to the workers and to the public. We think it is worth while, but we are not ready to make a definite report. I may say, however, that Dr. Andrews told me the other day that in the new building of the John Crerar Library they are depending on direct ventilation so far as possible; that they expect to get results at a cost for power of about 30 cents per hour, whereas under the old system (the system commonly in use in libraries) for the whole building it would cost \$1.25 per hour simply for power to drive the fan during the winter. You can multiply the hours your library is open by a cost of 30 cents or \$1.25 per hour and you see how the latter eats into your appropriation.

I want to say one word more on this problem of ventilation. In my judgment it is a problem of ventilating people rather than of ventilating buildings or rooms.

In conclusion I want to emphasize the importance to library workers of daily outdoor exercise on their part, because it has a vital relation to this problem of ventilation. I want to express my conviction that the time will come when libraries will require of their workers that those who do not take proper outdoor exercise will be regarded as a menace to themselves, to their fellow workers, and to the public. Personally I would rather work alongside of a person, using reasonable care, who has tuberculosis than a person who from the lack of proper exercise and taking care of herself is unhappy unless the room is at 80 degrees temperature.

SURVEY OF STORAGE CONDITIONS IN LIBRARIES RELATIVE TO PRESER- VATION OF RECORDS

This survey was made by Arthur E. Kimberly and J. F. G. Hicks, Jr., research associates of the National Research Council, as one of a series of investigations concerning the preservation of written and printed records. It was published in 1931 by the United States Bureau of Standards where the investigations were being carried on by means of a Carnegie Corporation fund.

Sections of the report have been quoted below:

EXTERNAL DETERIORATING AGENTS

The permanence of paper is affected by two distinct groups of factors—one, the “internal” agents of deterioration or those substances produced or left within the paper by the method of manufacture; the other, the “external” agents of deterioration or the factors which are introduced by the conditions of use and storage of the finished paper. In order, therefore, to obtain some indication of the extent to which these external agents are responsible for the deterioration of books stored in libraries, a survey of storage conditions in present-day libraries was undertaken.

The preliminary step in such a survey was the definition of the external agents as set forth by the literature. As early as 1881, Girard pointed out that cellulose, the principal constituent of paper, is readily attacked by acids and that the resulting product is further degenerated by contact with air. Later workers confirmed his statements and indicated other important factors in the deterioration of paper. Further perusal of the literature shows the following external agents to be of consequence in any consideration of paper preservation.

1. Light, particularly sunlight, attacks both the paper fibers and the sizing material, producing “yellowing” and brittling.

2. The absorption of moisture containing sulphurous and sulphuric acids resulting from the combustion of coal and other present-day fuels, produces marked deterioration.

3. Successive changes in atmospheric temperature and relative humidity seem to exert a marked deteriorative effect, the phenomenon most frequently observed being that of brittling following prolonged storage in warm, dry places.

4. Insects, worms, molds, and fungi also attack books in some instances.

Since the literature indicates that the above factors influence paper preservation, it follows that the ideal library for the preservation of records would be one in which it is possible to control or eliminate the "external" deteriorating agents, and it was to this ideal library that the institutions investigated were compared.

RECOMMENDATIONS

Taking into account present library conditions and the results of the laboratory work to date, the following recommendations as to library conditions may be made:

1. Daylight, particularly the actinic rays, should be rigorously excluded from bookstacks, either by the total elimination of windows or so far as possible by the use of thick glass. Any necessary illuminations should be supplied by small, frosted, incandescent lamps, lighted as required.

2. Temperature and humidity should be automatically regulated within relatively narrow limits. A suggested range for temperature is 65 degrees to 75 degrees F., and for humidity, 45 to 55 per cent.

3. Incoming air should be purified to remove dust (oil filters) and acidic pollutants (alkaline-water wash in scrubbers).

4. When books or other records are stored in a purified atmosphere they should not be removed from it unnecessarily, as a short exposure to impure air may undo preservative measures of many years' duration.

The machinery necessary to carry out recommendations 2 and 3 would be:

1. Oil filters of a type in which the oil coating is continually renewed.

2. Refrigerating apparatus to cool both incoming air (when necessary) and the solutions for the water curtains.

3. Water curtains, utilizing slightly alkaline solutions and having thermostatic control of temperature.

4. Apparatus to heat to desired temperature purified, cold air coming from water curtain.

In connection with air conditioning it is obvious that the installation and operation of costly apparatus is useless if members of the library staff and others are permitted to open windows, thereby allowing impure outside air free access to the library building. Some difficulty of this nature may be encountered at the outset, but if the operating conditions chosen are conducive to increased comfort, and it is believed that such is the case with the recommended conditions, these troubles should soon disappear. Conditioned air is coming to be used more extensively every day, not only in places of amusement but also in industrial plants and office buildings, with increased comfort and efficiency to all concerned.

SUMMARY

1. Daylight, polluted air, variation of temperature and humidity, and pests, are "external" agents of paper deterioration.

2. The effects of light are well recognized and guarded against in most libraries, altho one library, ultramodern in most respects, is without protection against light.

3. No library of those inspected had taken all the precautions mentioned for protection against polluted air and variation of temperature and humidity.

4. Recommended storage conditions are those in which daylight and polluted air are excluded and the temperature and humidity maintained at 65 degrees to 75 degrees F., and 45 to 55 per cent, respectively.

STACKS AND SHELVING

Wooden cases, dark, dusty, bulky, and often forming alcoves, gave way gradually to the demand for fireproof, light, clean and compact stack-storage for rapidly increasing collections of books. Some of the distinctive stages of this process have been treated in articles in this section, but for individual arrangements of stack sections, as the "radial," or for such problems as the relations of shelves to high and low windows, reference should be made thru the index to descriptions and plans of individual libraries, in particular Springfield, Mass., included elsewhere in the volume.

SHELVING

As soon as the leaders of the library profession began to face the shelving problems caused by enlarged collections and increased use, they were obliged to develop more economical arrangements to supplement the solid wooden wall shelves and stacks. The situation in 1876 is well stated by Dr. Poole in his consideration of the organization and management of public libraries in the Special report issued by the United States Education Bureau. This was before the open shelf idea transformed the shelving problem to the easy access arrangement found in every modern public library today.

A sketch of Dr. Poole is in Volume III of this series, *The Library and Society*.

The common mode of building the bookcases against the walls is not an economical arrangement of space, and scatters the books too much. The problem is to economize space and bring the books as near as possible to the counter from which they are to be delivered. The time and steps of the attendants are saved by shortening as much as possible the distance they are required to go for books. This is done by constructing cases open on both sides and placing them at right angles to the wall, and yet so far distant from the wall at which the light enters that there is a free passage around them. The length of the cases will depend on the space available. They may be from 10 to 13 feet long. Five feet between these cases is sufficient, and they should be placed to the best advantage with reference to the light. By leaving a space of $2\frac{1}{2}$ or 3 feet between the ends of the cases and the wall, there will be sufficient cross light for cases which stand between windows and do not receive the light direct.

The cases should not be so high but that a person of full stature can reach the books on the top shelf without steps. Their

general dimensions may be as follows: Base, 4 inches; space for books, 7 feet 6 inches; cornice and finish, 8 inches; total height, 8 feet 6 inches. The depth of the cases need not be more than 16 inches. A thin paneled partition passes thru the middle of each case separating the books on the two sides. The shelves will be $7\frac{1}{2}$ inches in width, and their length must not be more than 3 feet 6 inches. The shelves must be all of the same length, so that they will fit in any locality. They must also be movable, in order that they may be adjusted at any distance from each other. This is best attained by supporting them on pins, the square heads of which, cut into the under side of the shelf, are out of the way and not seen. The holes for the pins, three-eighths of an inch in diameter, one inch from the outer and inner edge, and one inch apart from center to center, are bored in the standards by machinery when the stock is prepared. The pins, of hard wood, are also made by machinery. A skilful mechanic who has machinery will take a contract to make such cases as cheaply as if the shelves were fixed. Some wood harder than pine should be used for the cases, tho the partition panels may be made of pine. Ash is an excellent wood for this purpose, and in some parts of the country is as cheap as pine, tho the working is somewhat more expensive. Whatever wood is selected, use no paint, but varnish with three or four coats, and rub down and finish the ends and cornices.

The ends of the cases should be paneled. The partition need not be thicker than half-inch stuff. The front edges of the shelves should be rounded, as sharp edges will cut the binding of the books. No glass or wire doors are needed in front of the cases, as the public does not have access to them.

The cases which have been described will hold only octavos and smaller volumes, and these comprise nineteen-twentieths of the volumes of a circulating library. Other provision must be made for quartos and folios. If cases were made deep enough to accommodate all sizes, they would be expensive and cumbersome. It is better, therefore, that books larger than royal octavos should be kept by themselves in cases prepared especially for them, even if it separates some books from others of the same class. One or more wall cases with a ledge may be provided for these books. Below the ledge the depth may be 16 inches, which will take in folios, and above the ledge $10\frac{1}{2}$

inches, which will accommodate quartos. These wall cases will be of the same height, general construction, and finish as the other cases. If bound newspapers are kept, cases of even greater depth than these must be made. One advantage in constructing cases in the manner described is, that if the library has occasion to change its quarters, its entire furniture and equipments may be removed and set up without reconstructing.

THE SLIDING PRESS AT THE BRITISH MUSEUM

The movable book case for economy of space first appeared in England, and a modern development of it has only recently made its appearance in America. Therefore, our account of it is one by the "Keeper of Printed Books" of the British Museum where it was extensively developed to care for a rapidly increasing collection with limited space. Brief descriptions of the invention appeared in American library publications in 1887, but in the article reprinted here Mr. Garnett has included some consideration of its adaptability to other libraries. This article was read at the annual meeting of the Library Association held at Nottingham, September, 1891. Richard Garnett, who died in 1906, was Keeper of the Department of printed books, British Museum, 1890-99, Editor of the British Museum catalog, 1881-1890, and author of many literary essays, poems and bibliographical articles.

The object of this paper is to give a short account of the sliding-press or hanging book-press now in use at the British Museum, and to suggest the importance of its introduction elsewhere where possible, and of regard being had to it in forming the plans of libraries hereafter to be built. Every successful library is destined to be confronted sooner or later with the problem how to enlarge its insufficient space. Without considerable financial resources such enlargement has hitherto been absolutely impracticable, and even where practicable has rarely been carried into effect without a long period of makeshift, discomfort and disorganization for which the enlargement itself affords only a temporary remedy. The great advantages of the sliding-press in this point of view are two: it allows expansion within the edifice itself, without the necessity of additional build-

ing, and it enables this expansion to be effected gradually out of the regular income of the library without the need of appealing for the large sums which would be required by extensive structural additions to the existing edifice.

I may assume that all present have seen, or will see, the photographs of the museum sliding-press exhibited to the conference, with the accompanying description. I may therefore be very brief in my account of it here, and simply characterize it as an additional bookcase hung in the air from beams or rods projecting in front of the bookcase which it is desired to enlarge, provided with handles for moving it backwards and forwards, working by rollers running on metal ribs projecting laterally from the above-mentioned beams or rods, and so suspended from these ribs as absolutely not to touch the ground anywhere. These are its essential characteristics, without which it would be indeed an additional book-press, but not a hanging-press or sliding-press. In recommending this system of additional accommodation, I by no means wish to insist upon this special form as the only one adapted for the necessities of a library. I have no doubt that in very many libraries the arrangement of the projecting beams or rods would be inapplicable, and that it would be better to resort to the original form of the idea, from which the Museum derived its own application of it—the idea, namely, of a skeleton door made in shelves, hinged upon the press requiring expansion, running on a wheel resting upon a metal quadrant let into the floor, and opening and shutting like any ordinary door. I have merely to affirm that for the Museum the adaptation we have made is a very great improvement; but this is due to the peculiar construction of the rooms to which the new press has hitherto been chiefly confined. Rooms of this pattern do not generally exist in public libraries, and where they are not found I am inclined to think that the plan which I have just described, the prototype of the Museum sliding-press, may be found the more advantageous. I also think, however, that, for reasons quite unconnected with the sliding-press, this pattern of room ought to be imitated in libraries hereafter to be built, and when this is the case it must inevitably bring the Museum press after it. It will therefore be worth while to describe this style of building, in order that the mutual adaptation of it and of the sliding-press may be clear. It consists of three stories lighted entirely from the top. It is therefore

necessary for the transmission of light from top to bottom that the floors of the two upper stories should be open; and they are in fact iron gratings. It follows that the floor of the highest story must form the ceiling of the second, and the floor of the second the ceiling of the third. Here is the key to the sliding-press system. The beams or rods which I have described as projecting from the presses that line the wall already existed in the shape of the bars of the grating, and did not require to be introduced. Nothing was needful but to provide them with flanking ribs projecting at right angles, from which the additional press could be suspended by rollers admitting of easy working backwards and forwards, and then the sliding-press was fully developed out of the skeleton door. No thought of it had ever crossed the minds of the original designers of the building; yet they could have made no better arrangement had this been planned with an especial view to its introduction. They had even made the stories of exactly the right height, eight feet. I have not hitherto mentioned that the press takes books before and behind, because this feature is not essential, and must indeed be departed from when the press is applied to the accommodation of newspapers and such like large folios. For ordinary books it is manifestly a great advantage, but carries with it the obligation that the presses shall not be higher than eight feet, or, when full on both sides, they will be too heavy to work with comfort, unless, which I do not think impracticable, machinery for the purpose should be introduced.

The principle of a sliding or hanging press is, so far as I know, entirely peculiar to the British Museum, and hardly could have originated elsewhere than in a building possessing, like the Museum, floors and ceilings, entirely grated. The main point, however, the provision of supplementary presses to increase the capacity of the library without requiring additional space, had previously been worked out in at least two libraries. The earliest example, apart from casual and accidental applications at Trinity College, Dublin, and, as I have been told, the Bodleian, was, I believe, at Bradford Free Library, and the gentleman entitled to the credit of its introduction there was Mr. Virgo, the librarian. Mr. Virgo's contrivance was, I understand, a double door, not hinged on to the original press in one place, as in the pattern I have just described, but opening in two divisions to right and left, as frequently is the case in

ing, and it enables this expansion to be effected gradually out of the regular income of the library without the need of appealing for the large sums which would be required by extensive structural additions to the existing edifice.

I may assume that all present have seen, or will see, the photographs of the museum sliding-press exhibited to the conference, with the accompanying description. I may therefore be very brief in my account of it here, and simply characterize it as an additional bookcase hung in the air from beams or rods projecting in front of the bookcase which it is desired to enlarge, provided with handles for moving it backwards and forwards, working by rollers running on metal ribs projecting laterally from the above-mentioned beams or rods, and so suspended from these ribs as absolutely not to touch the ground anywhere. These are its essential characteristics, without which it would be indeed an additional book-press, but not a hanging-press or sliding-press. In recommending this system of additional accommodation, I by no means wish to insist upon this special form as the only one adapted for the necessities of a library. I have no doubt that in very many libraries the arrangement of the projecting beams or rods would be inapplicable, and that it would be better to resort to the original form of the idea, from which the Museum derived its own application of it—the idea, namely, of a skeleton door made in shelves, hinged upon the press requiring expansion, running on a wheel resting upon a metal quadrant let into the floor, and opening and shutting like any ordinary door. I have merely to affirm that for the Museum the adaptation we have made is a very great improvement; but this is due to the peculiar construction of the rooms to which the new press has hitherto been chiefly confined. Rooms of this pattern do not generally exist in public libraries, and where they are not found I am inclined to think that the plan which I have just described, the prototype of the Museum sliding-press, may be found the more advantageous. I also think, however, that, for reasons quite unconnected with the sliding-press, this pattern of room ought to be imitated in libraries hereafter to be built, and when this is the case it must inevitably bring the Museum press after it. It will therefore be worth while to describe this style of building, in order that the mutual adaptation of it and of the sliding-press may be clear. It consists of three stories lighted entirely from the top. It is therefore

necessary for the transmission of light from top to bottom that the floors of the two upper stories should be open; and they are in fact iron gratings. It follows that the floor of the highest story must form the ceiling of the second, and the floor of the second the ceiling of the third. Here is the key to the sliding-press system. The beams or rods which I have described as projecting from the presses that line the wall already existed in the shape of the bars of the grating, and did not require to be introduced. Nothing was needful but to provide them with flanking ribs projecting at right angles, from which the additional press could be suspended by rollers admitting of easy working backwards and forwards, and then the sliding-press was fully developed out of the skeleton door. No thought of it had ever crossed the minds of the original designers of the building; yet they could have made no better arrangement had this been planned with an especial view to its introduction. They had even made the stories of exactly the right height, eight feet. I have not hitherto mentioned that the press takes books before and behind, because this feature is not essential, and must indeed be departed from when the press is applied to the accommodation of newspapers and such like large folios. For ordinary books it is manifestly a great advantage, but carries with it the obligation that the presses shall not be higher than eight feet, or, when full on both sides, they will be too heavy to work with comfort, unless, which I do not think impracticable, machinery for the purpose should be introduced.

The principle of a sliding or hanging press is, so far as I know, entirely peculiar to the British Museum, and hardly could have originated elsewhere than in a building possessing, like the Museum, floors and ceilings, entirely grated. The main point, however, the provision of supplementary presses to increase the capacity of the library without requiring additional space, had previously been worked out in at least two libraries. The earliest example, apart from casual and accidental applications at Trinity College, Dublin, and, as I have been told, the Bodleian, was, I believe, at Bradford Free Library, and the gentleman entitled to the credit of its introduction there was Mr. Virgo, the librarian. Mr. Virgo's contrivance was, I understand, a double door, not hinged on to the original press in one place, as in the pattern I have just described, but opening in two divisions to right and left, as frequently is the case in

cupboards. I speak, however, with some uncertainty, for when, writing on the subject in Mr. Dewey's *Library Notes*, and most anxious to give Mr. Virgo all due credit, I applied to him for particulars of his invention, modesty, as I must suppose, rendered him silent, or at best but insufficiently articulate. I hope he may be present today, and that the Conference may hear the particulars from himself. It is due, however, to the Bethnal Green Library, the other institution to which I have referred as having given effect to the principle of press expansion *in situ*, to state most explicitly that the idea of its application at the Museum was derived wholly and solely from Bethnal Green; that the Bradford example, tho it had been set for some years previously, was never heard of at the Museum until the model had been constructed and the first presses ordered; and that I am satisfied that Bethnal Green knew as little of Bradford as the Museum did. The Bethnal Green inventor was, I am informed, the late Dr. Tyler, the founder and principal benefactor of the institution, and, as elsewhere, the device was resorted to by him under the pressure of a temporary emergency—in this case the accumulation of specifications of patents annually presented by the Patent Office. The introduction of the principle at the Museum dates from the November evening of 1886, when, going down to attend a little festivity on occasion of the reopening of the Bethnal Green Library after renovation, I was shown the supplementary presses by the librarian, Mr. Hilcken. I immediately saw the value of the idea, and next morning sent for Mr. Jenner, assistant in the printed book department, in whose special fitness I felt great confidence, from his admirable performance of the duty of placing the books daily added to the Museum, which frequently requires much ingenuity and contrivance. I told Mr. Jenner what I had seen, and desired him to consider whether he could devise a method of adapting the Bethnal Green system to the emergencies of the British Museum. He did consider: he went down to Bethnal Green and saw the presses employed there, and, to his infinite credit, hit upon the plan of suspending the presses from the grated floors of the upper story which, as I have already pointed out, is entirely original. A model was constructed by the aid of Mr. Sparrow, the ingenious locksmith of the Museum. Mr. Bond, then principal librarian, took the matter up warmly, the first batch of presses was ordered early in 1887, and from that time for-

ward we have had no difficulty at the Museum in providing space for ordinary books, altho some structural alterations will be requisite before the sliding-press can be applied to the whole of the New Library, and it must be modified if it is to be made serviceable for newspapers. A new room in the White Wing, not admitting of a grated ceiling, has been specially adapted with a view to the introduction of the press, and may be usefully studied by librarians about to build, altho I think that some modifications will be found expedient. I have pleasure in adding that on my report of June 1, 1888, in which I went into the whole matter very fully, the trustees obtained from the treasury a gratuity of £100 for Mr. Jenner and of £20 for Mr. Sparrow, in recognition of their services.

I have designedly said recognition, not recompense, for no grant likely to be awarded by the Treasury would bear any proportion to the saving effected on behalf of the nation. To make this clear I will adduce some particulars stated in my report to the trustees. Eight hundred sliding-presses can be added to the New Library at the Museum without any modification of the building as it stands, and three hundred more by certain structural alterations. The cost of a press being about £13, this gives £14,300 for the 1100 presses, or, with a liberal allowance for the cost of the alterations, say £15,000 altogether. Each press will contain on the average about 400 volumes, showing a total of 440,000 volumes, or about seven times the number of books in the great King's Library added to the capacity of the New Library, without taking in another square inch of ground. Excluding newspapers, periodicals, Oriental books—otherwise provided for—and tracts bound in bundles, and assuming an annual addition of 20,000 volumes of other descriptions, this provides for twenty-two years. But much more may be said, for, whether in the form of swinging door or sliding-press, the principle of expansion *in situ* can undoubtedly be carried out thru the greater part of the Old Library, as well as in the basement of the New. What additional space this would afford, I have not endeavored to estimate. Another immense advantage connected with the system is the facility it offers of gradual expansion. Any other enlargement requires new building; new building requires a large sum to be raised by a great effort of rating, borrowing, or subscribing; and too frequently the adjoining ground is preoccupied, and must be acquired at a great

additional expense. Fifty thousand pounds would, I believe, be a very moderate estimate for such accommodation, if obtained by building, as the Museum gets from the sliding-press for £15,000, supposing even that the ground were free to build upon. In our case, however, this ground must have been purchased; and I question much whether anything short of an expropriating act of Parliament would have obtained it at all. We may well imagine the Trojan siege we should have had to lay to the Treasury, to obtain the act and the money; the delays of building when these were eventually forthcoming, and the fearful inconvenience which would have existed meanwhile. Now we simply put down a sum in the annual estimates for as many sliding-presses as are likely to be required during the ensuing financial year, introduce them wherever they seem to be necessary, and hope to go on thus for an indefinite number of years. Any new apartment, complete in itself, must involve waste, for some parts of it must necessarily fill up faster than others; but in the sliding-press is a beautiful elasticity; it can be introduced wherever it is seen to be wanted, and nowhere else. Finally, and for the Museum this is most important, the additional space gained is in the close vicinity of the reading room. A new building must have been at a distance, involving either great inconvenience in the supply of books to readers, or an additional reading room, catalog, reference library, and staff.

I think enough has been said to convince librarians of the expediency of taking the sliding-press, or some analogous contrivance, into account, in plans for the enlargement of old libraries or the construction of new ones. Some libraries will not require it, either because they are on too small a scale or because, like branch libraries in great towns, they admit of being kept within limits, or because, like Archbishop Marsh's library at Dublin, they are restricted to special collections. But all experience shows that it is impossible to provide for the wants of a great and growing library on too generous a scale, or to exhibit too much forethought in preparing for distant, it may be, but ultimately inevitable, contingencies. York Cathedral Library might have seemed safe, but see the burden which Mr. Hailstone's recent benefaction has laid upon it. To the librarian it may be said of Space what the poet said of Love:

Whoe'er thou art, thy master see,
He was, or is, or is to be.

I should add that the cost of a sliding-press, or of a door-press, might probably be much less to a provincial library than to the Museum, where the shelves are constructed in the most elaborate manner for special security against fire.

In fact, I believe that the sliding-press is only one corner of a great question, and that in planning large libraries it will be necessary to take mechanical contrivances into account to a much greater extent than hitherto. I am especially led to this conclusion by some particulars which have reached me respecting the new Congressional Library at Washington. I am unable to state these with the requisite accuracy, but I hope that some American friend may be present who can supply the deficiency.

I have to add that the photographs of the sliding-press here exhibited by me were taken by Mr. Charles Praetorius, and that copies can be obtained from him. He may be addressed at the Museum. I hope that they fulfil their purpose; they cannot, however, of course, represent the press so well as the model of it constructed by Mr. Sparrow for the exhibition of library appliances at Antwerp, where it was shown last year. This is now exhibited to the public in the King's Library, and Mr. Sparrow could probably produce copies of it if desired. An account of the press was contributed by Mr. Jenner to the *Library Chronicle*, and by me to Mr. Melville Dewey's *Library Notes*, both in 1887.

GAS PIPE FRAMES FOR BOOK SHELVES

Efforts to secure fireproof conditions in library buildings resulted in many experiments, of which this one made at the Buffalo Library, and described by Josephus Nelson Larned, in *Library Notes*, shows ingenuity at least.

The cast iron stacks to which he referred never gained widespread use, largely for the reasons he suggests.

A sketch of Mr. Larned is in Volume III of this series, *The Library and Society*.

By constructing the frame-work for library book-shelving with standards of gas-pipe or iron tubing, having shelf-bars that slide upon them and are adjustably fixed in place by set-screws, we secure, I think, several advantages more or less important.

1. Economy of material and lightness, as compared with any cast-iron construction for the same purpose.

2. Economy of room. The divisions between our sections of shelves are of light sheet-iron, and no appreciable space is taken up by anything except the books themselves and the shelves they rest on.

3. More precision and more rigidity of construction, as compared with the cast-iron "stack" structures, if it is true, as reported, that the standards of the latter are warped in the casting, and that uniform lengths of shelf will not fit in them.

4. The least possible obstruction of light; and this appears to me to be a very important consideration in favor of the gas-pipe shelf frames. In wooden book-casing, the upright parts, both at the ends and at the divisions, all cast solid shadows. It is pretty nearly the same in the heavy cast-iron stacks. But in the pipe-made stacks or frames we have the greatest possible openness to light. Each of the sliding shelf-bars carries—riveted to it—a sheet-iron book-support, 5 inches high, which is only half the average spacing between shelves. Above it there is free passage for light thru all the spaces that are open; that is, thru every cranny of space between shelves that is not filled

with books. And I can testify that this does make an important difference in the diffusion of light thru a closely filled book-room.

5. The freest circulation of air among our books, which I have no doubt will make a considerable difference in the life of bindings.

6. Cleanliness; easy access to shelves for washing and for wiping with damp cloths; few holes and corners for accumulating and hiding dust.

7. So far as concerns appearance, I can claim nothing for the iron pipe-made book-stacks or frames, except that they satisfy the eye by the perfection with which their structure is adapted to its purpose. They have no beauty, but they are neat, compact, trim.

On the question of cost, I can furnish no comparative estimates; but I can give the facts of the actual outlay in two libraries upon shelf-frames or stacks constructed on this plan, and those who know the cost of other modes of construction may make the comparison.

In the Buffalo Library there are 38 "stacks," each 15½ feet long, carried up two tiers in height, each tier being 7 feet high, and with a floor of glass and iron gratings for the second tier, constructed between and around the stacks. There are also eight "stacks" which are only one tier high. The lineal measurement of shelving in all the "stacks"—measuring on both faces of each—is 17,800 feet. The cost of the whole was \$7,200, which is at the rate of about 40 cents per running foot of shelf. But \$3,000 of that cost is in the floor and stairs for the second tier, deducting which, there remains a fraction over 24 cents per foot of shelf for the cost of the same extent of shelving in frames one tier high.

In the Music Hall and Library of the German Young Men's Association of Buffalo there have just been constructed six book-shelf frames according to the design of those in the Buffalo Library, but only one tier 7 feet high. They contain 1,932 feet of shelving, and cost \$576, which is at the rate of nearly 30 cents per foot.

[The cost of a cast-iron stack is about \$1.00 a running foot for uprights; \$1.00 a square foot for foot gratings and bearers; 5 cents each for iron book shelf supports; \$100 a flight for stairs; or about 15 cents a cubic foot for the stack, stairs, gratings, and wood shelves, complete, but not counting the building.—EDITOR, L. N.]

ADJUSTABLE BOOK SHELVING AND GREEN'S BOOK STACK AND SHELVING FOR LIBRARIES

The next step in stack construction was the steel stack which was adopted rather slowly because of its expense. Since it is not so desirable as wooden cases for open shelf arrangement it has never entirely replaced them for such locations as necessitate harmony with wood finish.

Descriptions of two of the first styles patented are here quoted—the Stikeman, manufactured by A. B. and W. T. Westervelt, and that designed by Bernard R. Green for the Library of Congress, and manufactured by Snead and Company. Both are from editorials in *The Library Journal* of 1893.

ADJUSTABLE BOOK-SHELVING

The Stikeman patent adjustable book-shelving possesses some original features which should be noted by librarians, library architects, and others interested in library work.

The shelving is constructed of steel, thus giving a minimum weight of material, and it is so designed as to allow a sufficiency of light in all portions of the structure—that being the prime essential in the proper arrangement of library shelving. The shelving may be erected in aisles or alcoves as well as flat against side walls, thus allowing a variety of arrangement, as well as conforming to the requirements of any building. The standards are formed by peculiarly shaped notches or teeth, which serve to support the shelving, as well as to carry the mezzanine flooring when stacks of more than one story in height are desired.

The shelving, made any suitable length or width, is furnished in finished wood or planished steel, to which ornamental brackets of highly polished steel are secured at the ends. These brackets,

having projecting steel pins, fit the teeth or notches, so that a shelf may be set at any desired height as well as making each shelf independently adjustable from all others. By combining a shelf and its end brackets a compartment is formed which can be changed without disturbing or removing the books arranged upon it. The shelves may be adjusted in alignment or at differing heights, and any number of shelves may be utilized in each division between standards, as occasion may demand. This facility of adjustment is one of the most obvious advantages of the shelving, as it permits of personal convenience in its arrangement, and allows for extension if increased book capacity is later desired. The standards at the base are set in sockets which are firmly secured to the flooring.

The system has just been completed in the Public Library, Memorial Hall, Lowell, Mass., having a shelving capacity of about 100,000 volumes. The same system is used in the new Otis Library, Norwich, Conn., and gives entire satisfaction. The shelving is made and erected by A. B. and W. T. Westervelt, manufacturers of ornamental iron, 102 Chambers Street, New York, at whose warerooms a full-sized section of the system can be seen. The inventor and patentee, Mr. George Stikeman, has been connected with this firm for many years, and still superintends the construction and erection of his shelving.

GREEN'S BOOK STACK AND SHELVING FOR LIBRARIES

The book stack and shelving for libraries designed by Bernard R. Green for the new Congressional Library building goes far to solve the problem of combining strength, adaptability, ventilation, simplicity, and accessibility in library shelving. It is the outcome of nearly ten years' thought and practice on the part of its inventor, who has given much care and exhaustive consideration to the designing and construction of libraries. Especially suited for large libraries, it is readily adapted to the requirements of small buildings or to book stacks of any extent. The books are economically shelved in double faced parallel ranges, each passage being lighted by a separate window at one or both ends or by skylights. In buildings where daylight is precluded and artificial lights must be resorted to, the arrangement of shelving is equally well adapted for ceiling lights under the decks, with or without reflectors, giving perfect illumination in every part of the stack. The shelf is of uniform size thruout

the stack, and adjustable to any height. The ranges rise tier on tier to any desired elevation, at intervals of seven or seven and a half feet from floor or deck to deck.

The construction consists simply of a row of flanged iron columns in the axis of the range, spaced the shelf length from centers, resting on the foundation with suitable footing, extending continuously to the top of the stack, and having attached to them a pair of skeleton cast iron partitions or shelf rests in each story, winging out in opposite directions, one for each side of the double range. The deck bars are of flanged iron riveted or bolted to the columns at each deck level, thus connecting the rows of columns, which are also connected to each other at the same levels by flanged bars at right angles to the deck bars. These deck members are connected continuously thru the stack horizontally, cross-wise, and longitudinally, wall to wall, into which they are anchored, thus bracing the columns at every story. The covering of the decks is preferably composed of thin slabs of white marble, rubbed and polished the better to reflect light, with an open slit 4 or 5 inches along the front of each book range for passage of air and light, also for conversation between decks and the handing thru of books, papers, and other thin articles. The shelf partitions are provided with a continuous row of teeth on the front edge and a corresponding row of horns on each side, to carry the shelves, which in turn are provided with lugs and claws to engage the teeth and horns of the partitions for support. This permits adjustment of shelves thruout the entire story. The shelf consists of an open grating of parallel iron bars, all parts with which books may come in contact being ground smooth and coated with magnetic oxide of iron, protecting from rust or corrosion and precluding the necessity of painting. In many-storied stacks stairways and elevators are provided; automatic book carriers are also furnished. Special arrangements for heating and ventilation are made.

The shelving is manufactured by the Snead and Company Iron Works, Louisville, Ky., and patented by Mr. Green. The manufacturers issue a handsome illustrated twenty-three page pamphlet, describing the shelving in minute detail.

LIBRARY BUILDINGS AND BOOK STACKS

Mr. Green knew stacks thoroly because he had invented one of the first steel stacks used. He knew library construction and purpose from extensive study and experience, and he here maintains that the stack is most adaptable and simple if properly designed and placed.

A sketch of Mr. Green will be found on page 69.

All buildings should be designed and equipped with the utmost regard for their objects and purposes—the service they are to render practically—while in their artistic or architectural treatment so-called they should be plainly expressive of those objects and purposes. Library buildings are especially capable of this, but quite too frequently they are not so designed. Otherwise it would be much less difficult than it now is to recognize the library building in an unfamiliar town unless appropriately labelled.

This fault, however, is not a monopoly of the libraries, for all classes of buildings are in the same category, altho churches, dwellings, and a few other buildings are more readily recognized by their architecture. It is to be hoped that the advancing practice of architecture—and it is now really advancing in this new country of ours—may soon become rational enough to enable the purposes of all buildings, especially the libraries, to be read in their forms and lines. Every building should architecturally announce to all intelligent beholders its reason for being.

The purpose and uses of the library itself are so distinctive that its several features may be made evident in the architecture of the building. Offices for the administrative work, rooms for cataloging and card writing, reading, comparing and examining printed and manuscript matter of every degree of illegibility and indistinctness, requiring much constant and exacting use of the eyes, call for ingenious provisions for lighting—especially by daylight.

Quiet is also an essential to be carefully reckoned with, and, of course, also finely adjusted ventilation and temperature of the several spaces. There must be proper correlation between the various apartments. All-important also is the relative location and arrangement of the several departments and collections of material comprising the library itself.

The architect is an indispensable factor in the combination of talent, wide knowledge and experience that should guide the design, equipment and construction of a modern library building, and no such building should be undertaken without him. But he must be well acquainted with actual library work and administration to be of much service. This applies as well to all classes of buildings. The best of architects, those standing even at the head of the profession, have failed in practical library designing, some of them to a ridiculous degree; but it has not always, perhaps never, been altogether their fault. They have failed either to realize their own deficiencies or to learn from the librarian all the practical essentials of the building.

Architects and librarians should consult and give and take with each other from the beginning. Nor should it be the individual librarian of the particular library alone under consideration, if the object be public or general and not private. The building is to be far more permanent than human life or human opinion, and the more important and permanent the building the more essential a broad consideration of its plan and architectural design. It is really a far more serious question than is generally realized, the planning of a library building to cost several hundred thousands of dollars at the present stage of library science and development. Witness the queer examples about the country, sprouted in the recent epidemic of library extension. Most of the unsuitable buildings are due to unstated problems. Too many different ideas, good and bad, and too much of the lay trustee, as well as of the librarian himself sometimes, who thot he knew but didn't, have been the causes. The architects have not been to blame except so far as they have assumed to know and failed to find out—an exception that has occurred, however, rather too often.

When planning that largest of all the library buildings for the Library of Congress, eighteen years ago, librarians of broad experience and view, to tell what should be provided for the coming century of library development, were few—may it not now be said there were none? At least, they agreed on few

or no essential points, and the builders were compelled to generalize and draw conclusions from a variety of views, most of which were naturally unqualified by knowledge of the then state of the building art and mechanical resources. Up to that time the housing of libraries had not become very pressing and so the mother of invention had hardly appeared in that field.

Some of the positive statements of some of the librarians of the day would be interesting reading now. Perhaps those of Dr. Poole were the most conspicuous and aggressive in this way. His list of imagined mechanical and structural impossibilities on which he based his scheme for an ideal library building was amusing to any one acquainted with the possibilities, even of his own time. Some of the latter were incorporated in the plans of the Library of Congress. Instead of making out a list of the wants of the librarians of the day, for there was no consensus about it, one was made of their woes in building and mechanical arrangements and then it was undertaken to so design as to eliminate them all. This, I understand, was rather successful, and the outcome might have been much worse under all the difficult circumstances. This was accomplished in the main by doing in detail the parts that seemed unquestionable, and leaving undone, in large undivided halls, the undefined and speculative future subdivisions of the great national library then believed to be assured.

Librarians will never entirely agree as to the design and equipment of any one building, but they will in time unite on all fundamental principles. Architects may then generally please them, and be properly held to account if they do not.

But the general subject of library design and construction, on which I was asked to speak today, is quite too comprehensive for the few minutes available, and I will confine myself to a reconsideration of one of the divisions of the subject, namely, the book stack or the shelving for the library collections.

Modern collections are large and fast growing larger. In these days it is superfluous to state that the shelving should be close at hand, easily accessible thruout, conveniently adapted to the accommodation of its contents and for their economical rearrangement, reclassification and reception of accessories; clean and free from dust, well ventilated with a uniform and constant temperature of about 68°, well and even brilliantly lighted whenever and wherever required in the stack at all times, day or night, conveniently provided with stairs and elevators and,

for the larger stacks at least, suitable mechanical apparatus for quick transmission of books to and fro between the shelving and the delivery point or points. These are all important requisites of the modern stack and quite attainable.

The stature of men and women governs and limits the interspaces of the stack, while the dimensions of the items of the collection, such as the books, determine the dimensions and intervals of the shelving itself. Economy of construction, both in space and cost, fixes the lengths of the shelves within the limits of convenient handling. Thus, for ordinary sized books, the height of stories should be seven feet, the space between ranges or shelf fronts from two and one-half to three feet, and the main aisles four to five feet. Narrower spaces are tolerable when unavoidable, and wider ones more comfortable but correspondingly expensive in both prime cost and administration.

Observing these elements, the book stack may be of any dimensions lateral and vertical, covering acres of ground one tier in height, or a very small ground area and towering to many stories in height, or it may be indefinitely broad and high, all as questions of ground rent and other circumstances may dictate. Present resources and ingenuity are equal to the problem of rendering any such stack thoroly convenient and practicable at very moderate expense.

The acre stack of one tier height may be beautifully skylighted for day service. One of two tiers with a glass deck may be similarly well lighted, but not beyond this.

Altho one of the essentials of a good stack is close proximity to the points of use, such as the reading and delivery rooms, the word may be taken in a figurative sense and the object well secured, should conditions make it advisable to locate the stack at some distance and even quite outside and away from the library building proper, as, for instance, on the other side of the street or in the middle of the next square, or even at a considerably greater distance. A tunnel not unlike that in successful operation between the Library of Congress and the Capitol, a quarter of a mile in length, equipped with entirely practicable rapid transit machinery, operated in conjunction with telephones and pneumatic tubes, would very satisfactorily accomplish the purpose.

I am not forgetting the indispensable matter of light within the stack. It is really the main point I have to present.

Until very recently, in fact down to the time of the incandescent lamp a few years ago, daylight was almost wholly depended on for finding books on the shelves. Consequently the prime effort in design and arrangement was to get daylight into the shelf spaces thru windows and skylights, using the ground space and special locations on the lot indispensable to that purpose. This was done with special pains in building the Library of Congress. It has been anxiously provided also, but less effectively, in the New York Public Library now under construction.

In both cases valuable space and much money have been expended in efforts to secure daylighted stacks, but with very limited success.

Hitherto, book stacks have generally been placed at the outer wall lines of the buildings and wide open spaces left around them to admit as much daylight as possible. Skylights have been provided in the roofs and clear light wells within the shelf rooms for the penetration of the light down and between the shelf ranges. As much or more space on the lot was given up to the admission of daylight as to the shelving and its communicating spaces combined.

Daylight, however, is the most unequal and unsteady of all human dependencies, under the ever-changing position of the sun and condition of the weather. Using our libraries as we now do, almost as much by night as by day, we are without daylight altogether about one-half of the time. During the other half it comes to us on a varying scale from direct sunshine, which is the double of what we need or can endure, to something less than twilight or the reflection from a thunder cloud, which is less than half of what we actually need.

At the first extreme we must draw the always vexatious window shade, and at the second turn on the artificial light, which, however, thus mixed with weak daylight, is unpleasant and unsatisfying to the eyes.

At the Library of Congress it became necessary some time since to devise and install window shades on both sides of the two principal book stacks, because the occupation of the shelves near the windows by the increasing collections exposed the books to the damaging effect of the direct rays of the sun. The great

number of the windows, some 600, required special mechanical control of the shades, and they are now operated conveniently and in a moment in separate sets of about 150 windows each by any attendant in the stack. So it is with sunlight; when we make anxious provision to let it in, we must make similar expensive provision for keeping it out.

Under present circumstances we are obliged to thoroly equip book stacks with artificial illumination and to use it frequently during almost every day—more or less continuously on some days and always, of course, at night.

Why not, therefore, disregard the daylight altogether wherever the expense of obtaining it in any useful quantity is too great? In its place we may secure absolute uniformity and any desired brilliancy at every point of every possible stack with the incandescent electric light.

The conditions described have been due to the fact that libraries heretofore were generally small and used chiefly in the daytime, and especially to the want of an effective, safe, and convenient artificial light for the peculiar requirements of a mass of closely packed book shelving and of the reading room. Then the light was furnished by some kind of fire, evolving great heat and more or less smoke, limited in its application by the danger of communicating fire, and always difficult and inconvenient of control. Its brilliance was limited and its color dull—in every respect greatly inferior to sunlight.

Now a quite opposite condition prevails in the availability of the incandescent electric light. It is far more nearly white, radiates but moderate heat in proportion to candle power, may be placed with safety anywhere, even in one's pocket or mouth, or amongst combustible materials and in any position. It is easily, perfectly, and instantaneously controllable in both quantity and intensity, and it is also not only of low cost but need not be used a moment longer at any point than actually required.

It is further to be said that daylight is injurious to the bindings and paper of books and that all such material is preserved from bleaching if kept in the dark, not to mention some books that should never see the light on other accounts.

For the reasons thus outlined the book stack, altho the heart of the library itself, may well be located in the least expensive and darkest, if not remotest, part of the library lot, quite regardless also of neighboring danger of fire. The walls being windowless and without necessary perforations, may be made quite

fireproof. All openings may be confined to the bottom and top of the stack. They may be few and small and under easy control.

All book stacks should, of course, be kept perfectly dry, and this would practically prevent the propagation of injurious insects, especially if proper care be taken in the construction of the shelving to leave no hiding places whatever for them. This is already the practice in the best stack construction.

By placing the stack in an unimportant position architecturally, no expense will be incurred for its architectural treatment. If it be located within and surrounded by the library building it will be kept warm in winter and cool in summer at very little expense. Such an enclosed stack may be more easily and inexpensively ventilated, and maintained at a uniform temperature because not exposed to the ever changeable temperature of the exterior air.

At the Library of Congress a stack of this character is proposed to accommodate the growing collections, in one of the four court yards, the plan being to fill the yard solidly full of shelving and roof it over. In this way the present court walls will enclose the stack and their present windows will open into it to any extent that may prove desirable. The expense of the construction will be only that of the shelving and decks, the ventilating apparatus and elevators and a simple flat roof resting directly on the numerous slender stack columns.

The best modern book stack structure is a very simple, light, self-contained framework of steel and iron with three decks, preferably of white marble or translucent glass, the shelving itself and supports being of steel open work. The separate pieces of material comprising the structure are very few in variety, small and light of weight and easily handled and put together. White marble decks are not only durable and clean but valuable as reflectors of light from below and above. The ends or heads of the shelf ranges and all other surfaces having any extent, should be white for the same reason.

The stack needs for its support and stability only a firm foundation or floor to stand on, depending on its height or number of decks, because its internal construction, including the multitude of slender columns extending from foundation to top—one at every shelf interval—may be such as to bind it together into one coherent mass like a hay stack. Surrounding walls may be utilized somewhat for its stability, but they are not

indispensable and generally serve only as a protection to the contents. The stack proper, therefore, is not a building but a piece of furniture which may be set up and stand alone in any room adapted for its reception. When built for permanence, the surfaces should have the most durable finish, or such as may be conveniently and effectively renewed when worn off.

The shelves should be uniform and interchangeable, and adjustable from top to bottom of the range. The decks should have wide openings along the fronts of the shelf ranges for better ventilation and diffusion of light and for communication between attendants on different decks, not to mention the saving of material in the decks.

Stack construction should be of the simplest possible form and detail, with nothing movable but the shelves themselves, and, like a spider's web, such as to occupy the least possible space and leave the room for the books. Some stacks are quite too self-evident and occupy space that would much better be filled with books if left available. That scheme of shelving which, other things equal, accommodates the greatest number of volumes in a given space is the thing. It requires, however, ingenuity and a full appreciation of the problem properly to work it out.

The stack should be so enclosed and ventilated as practically to exclude all outside dust and confine the accumulation of it to the inevitable internal causes of handling the books, their attrition on each other and the movements of the attendants and users of the books.

In using a stack, loose paper or similar inflammable stuff should be excluded from the lower tiers at least as a precaution against fire or smoke passing up through the deck openings. Danger from serious fire may thus be quite avoided, for shelved books of themselves are not liable to take fire and are still less capable of burning and transmitting fire.

Other details of stack construction, equipment, use and administration may be mentioned, many of which will occur to those who think of the subject, but the generalizations I have given are sufficient for the present brief occasion. None of the suggestions are impossible or even impracticable. On the contrary, nearly every one has been proved feasible.

SLOPING SHELVES

Desire to increase the efficiency of open shelf display of books has resulted in several experiments designed to bring books on the lower shelves more directly in line with the eye of the user. Tho experiments are still being made the sloping shelf seems to have come to stay.

A sketch of Willis K. Stetson who has since retired will be found in Volume VI of this series, *The Library Without the Walls*.

As used in book display cases sloping shelves have been familiar to librarians for a long time. But it seems that few librarians have ever seen sloping shelves in regular bookcases. They are much more needed in the lower part of regular bookcases than in display cases, especially for the bottom shelf four inches or so above the floor. Many libraries, as is well known, use bases about a foot high, thus practically doing away with the ordinary bottom shelf, others never use the low bottom shelf except in extraordinary situations, deeming it too inconvenient for public use. But many libraries do use the level low bottom shelf. The public do not like it.

When a few years ago the thot came to me that the lower shelves should be sloping, the New Haven Public Library had no need of using the bottom shelf and the two shelves above the base were given a slope by resting the shelf on pins, the back ones being placed one hole (one inch) below the front holes. After my retirement I frequented libraries using the low bottom shelf and was moved to write the article printed in *Library Journal* of August, 1930, suggesting that librarians try sloping shelves in the way stated, simply moving the shelf pins, altho if the bottom shelf were fixed a new shelf would have to be placed on or above it. After I wrote that article I learned that Mr. W. E. Henry had used projecting shelves in the University of Washington, with much satisfaction. I made some

experiments myself and wrote another article, printed in *Library Journal* of November 1, 1930, calling attention to projecting shelves. I had used a slope of about one inch in four and a projection in front of about three inches. I sloped the shelf above by using the back shelf pin one below the front one, and the result was that I could stand the usual distance in front of the bookcase and easily read the titles on every shelf.

After the latter article was published I found a different type of sloping bottom shelf which had been in use in the Washington, D. C., Public Library for some time. This type slopes downward toward the front, just the opposite of the other type, which I will call the Seattle type. A bookstop on the front edge prevents the books from slipping off. On this type of shelf the books stand on their front edges instead of on their bottom edges. This removes one objectionable feature of the other type, as books will slip back more or less in the Seattle type, and hence more time is required to keep the books in order. However, this objection is not in my opinion sufficiently serious to matter very much. As the Seattle type generally will require a bookstop on the back edge the same construction can be used in both types.

When the shelves of a bookcase are fixed the Washington type has the advantage that it can be used when the shelf above is only ten inches higher. Most libraries are able to and do use the Seattle type, so far as I know. Possibly, however, none of them knew about the Washington type. Strange to say the New Haven Public Library has used the Washington type in its fiction shelves for about thirty years, but placing it three feet above the floor, the idea being to obviate any stooping on the part of the public which adds to the congestion of the aisles, no shelves below being used. It never occurred to me to use it as a bottom shelf. The Washington type requires more space for the projection, a disadvantage in narrow aisles. I had the opportunity to put the Washington type in the Public Library of Williamsburg, Pa., where the shelves were all fixed. The results as to legibility were very gratifying, and the projection was not objectionable. Libraries considering sloping shelves need to investigate both types.

Last fall I asked a number of librarians to test sloping shelves and give me their opinion.

I learned that the Detroit and Toledo Public Libraries had them in use. Another library expects to use them in especially

designed bookcases in its next new branch. Two other large libraries have recently made tests and approve the principle. A college Library in Virginia wants to use them. Another public library has recently installed them in bookcases which had level shelves. Many librarians reported that they had been too busy to make any tests. Some of the makers of library furniture are working on a standard sloping shelf and are probably prepared to furnish bookcases of that kind now, either in wood or steel. One librarian wrote that the idea is a good one and is likely soon to be standard library practice.

So many librarians have approved the principle that all librarians may feel encouraged to install sloping shelves in their present bookcases. Aside from the cost of any new shelves needed, the expense will be very slight, a few cents for fittings bought at any hardware store and a few minutes of time of a janitor or carpenter. But details are still experimental. All librarians have the opportunity of contributing to the fixing of standards which will be most acceptable. No two libraries using sloping shelves at present probably agree on all details. Hence there is need of discussions at library meetings, publication of details of experiments in library periodicals, library reports, library commission publications, special libraries publications, and any others that will reach those who use library shelves even in business offices and private studies. Samples should be available in all parts of the country.

The convenience of the public may be considerably increased by closer spacing of shelves than is common. If 10 inches is the limit of oversize books, as is usual in public libraries, 9 inches can be adopted for non-fiction (except a few classes, as useful arts, fine arts and reference room books) and 8 inches for fiction. Surveys which I have made show that only about one book per shelf is between 9 and 10 inches high. Hence the problem of oversize books is of little importance considering the gain in convenience of having high shelves lower and/or lower shelves higher. Seven shelves of fiction require only 63 inches instead of about 78 which so many librarians use. Does not a little that show how much unnecessary inconvenience thousands and thousands of users of libraries are suffering from the ten inches spacing of fiction shelves? Should not all unnecessary inconveniences be avoided, and therefore should not librarians give careful thought to the matter of sloping shelves?

MISCELLANEOUS EQUIPMENT

In his inaugural address at the First International Conference of Librarians, 1877, John Winter Jones, Librarian of the British Museum said:

"The furniture of a library must very much depend on the nature of the library for which it is required. There is one point, however, to which it is desirable to draw attention. Every table on which a book is laid or used, and every barrow which is used to carry books from one place to another in the library, should be padded. The additional expense caused by the adoption of this precaution will be amply met by the protection from injury which it will secure for the books."

In the rare book collections of a few present day libraries such care is being taken of valuable books, but most of the concern of those who are equipping libraries at the present time is to secure rapid and convenient handling of transient books. Steel equipment is replacing wood in many places and every modern invention which can contribute to better service is being incorporated. Many of the articles which make up the equipment of a library are included as incidental to the description of a particular library or in general treatments of library planning. Such contributions to the subject may be located thru the index. A separate section on stacks and shelving precedes this group.

CARD CATALOG CASES

The selection of standard card catalog cases which would suit the majority of libraries, and could, therefore, be kept in stock at reasonable price, was one of the tasks assumed by the Cooperation Committee of the American Library Association whose activities helped reduce to some uniformity numberless library procedures and forms. Mr. C. A. Cutter was the chairman of this committee. Their tenth report made August, 1878, shows what was first selected out of the maze of forms originating in individual libraries.

Nearly thirty cases of various patterns have been made and tried, and we have selected four forms which will be kept on hand. For the standard cards a four-drawer case, 20 cm. (8 in.) deep, costing \$7, and a ten-drawer case, 40 cm. (16 in.) deep, five times the capacity, and costing \$17.50. The smaller case is adapted for private libraries and individual use. Its drawers are too short for convenience in a public library. It holds 9000 cards of paper, 6000 of ledger paper, and 4000 of bristol-board, the standard form. The larger case holds five times as many cards. These figures allow for blocks, etc., and for the loose arrangement most convenient in the catalog. The case will hold a half more if packed full of cards. This is the largest portable case desirable. If more capacity is needed, it is secured better by putting two of these cases back to back, if convenient, or if to face the same way, separated a little on the counter, rather than to make a larger case. With only two tiers of drawers, it is easy for different persons to consult each tier at the same time. With three or more tiers, this would be inconvenient. For the large standard card (P. size), the small case has three drawers, 40 cm. (16 in.) deep, and costs \$8.50; the double case, six drawers, same depth, \$14. These cases are alike except in number of drawers, and one is as desirable as the other if it gives space enough. The three-drawer case holds 6000 bristol-board cards or 9000 closely packed. The

wooden guards, to prevent the drawer being drawn too far out, can be put on any of the cases for 5 cents per drawer, extra. All these cases are of black walnut, handsomely finished and durably made, and are sure to give satisfaction for both their convenience and tastefulness.

CARD CATALOGS

One of the methods devised by Melvil Dewey to stimulate "apathetic libraries" to use and profit by what was being accomplished by those "imbued with the modern library spirit," was the publication of an inexpensive practical quarterly called *Library Notes*.

The following is his very adequate treatment of the equipment needed for properly handling a catalog on cards.

It is hardly necessary in 1886 to say that every library should have a card catalog instead of any of the various clumsy substitutes, for its enormous advantages over the other systems have been almost universally acknowledged and it hardly seems credible that any one familiar with the library world would even raise the question as to whether the card catalog was the best form for the official library record by authors and subjects. While it would be possible to use the card system for the accession record and shelf lists, as has been pointed out, their peculiar character makes it undesirable.

It is of the first importance if the card system is to be adopted that the best model should be secured. In many cases libraries professing to have a card catalog have a collection of titles carelessly written and inconveniently arranged on paper or cards of varying thickness and stored in drawers or boxes or on shelves in so awkward and unusable a way that more than half its utility is sacrificed. The one objection to the card system is that it is so much slower to consult than a book where the eye sees perhaps twenty titles at once, while in the cards the finger must turn a card for each. Therefore it is necessary to use the greatest care in many details, to be learned only by long experience, if the card system is to be a success. In many cases hundreds of dollars have been spent on card catalog cases, fittings, and cards which it will some day cost as much to make wholly satisfactory as it would to buy a new outfit complete.

While there is wide difference of opinion as to the best form of catalog to supply to the public, all agree that an author index on cards kept up to date is a necessity of safe administration, to guard against buying duplicates and chiefly to answer most directly and quickly the constant question—is such a book in the library? Whatever else may be done the author cards should be kept up to date. Books published anonymously, government publications, transactions of societies, and all works where some other word takes the place of the author's name must of course be included in this index, which must be a complete alphabetical record of the contents of the library.

CATALOG CARDS

The size of a card should not be smaller than the standard index $5 \times 12\frac{1}{2}$ cm. or larger than the standard postal card $7\frac{1}{2} \times 12\frac{1}{2}$ cm. The earliest card catalogs were started on sheets of paper. The Smithsonian Report in 1852 recommended a quarter sheet of foolscap as the best size. The result of experience for nearly forty years has been to reduce the size and increase the thickness of the sheet or card on which the separate titles are written. Ten years ago the committees of the Library Association recommended as the standard A. L. A. card the index size $5 \times 12\frac{1}{2}$ cm., and it has been very widely adopted. For the past five years there has been a constantly growing tendency to adopt the $7\frac{1}{2} \times 12\frac{1}{2}$ cm. card in order to have space at the bottom for notes. The difference in cost is trifling, but in a very large library the additional space occupied is a consideration. The printed titles which will be issued by the new publishing section of the Library Association will be of the postal size. Many libraries which have both an author index and the subject catalog use the large card for subjects and the small one for authors. An advantage of using both of the same size is the ease with which the form of catalog may be altered, if found desirable, i. e. the author and subject cards may be rearranged in a single dictionary scheme or divided into three sets of cases by authors, by titles and by subjects, or combined as local circumstances may indicate.

The original catalog was on ordinary writing paper which weighs 100 grams to the square meter and is marked on the Library Bureau catalogs 100 gr. Ten years ago the leading libraries largely used a bristol board three times this thickness (Br. 300). For five years an increasing number of libraries have

been adopting the special library bristol (Br. 400) which is one-third heavier than that made before. The thicker the card the more conveniently it can be handled in the drawer, the only objection being the extra cost and extra space occupied. There has been recently made a new linen library card (L 200) two-thirds the weight of the old standard and half the weight of the heaviest library bristol, which costs exactly double* and takes exactly double* the number of drawers, for a given library. If strict economy is important this linen card had best be adopted, but if means allow, the heaviest bristol (Br. 400) will give best satisfaction. A library with any considerable number of cards already written should hesitate about changing the thickness as it introduces a confusing element in the "feel" of the cards. The fingers running over the tops try to separate a 400 card into two 200^s or pass over two 200^s stuck together because they feel like one thick card.

The danger in the cards is two-fold. First, getting material that after long and hard use, the constant turning by thousands of fingers, will split so as to necessitate re-copying at very great cost. The cards whether thick or thin should be made of the best stock and treated and finished differently from the bristol board of commerce which is adapted for printing for which nearly all of it is used. Library cards should have a hard, metal-like finish, and greater firmness, as they take ink better, bear erasure better and being harder and firmer, take less room and wear longer in the drawers. It is wiser to save expense by using the thinner card rather than inferior stock. The second danger is that they will not be cut exactly of the same size. A difference of 1 mm. (1-25 in.) in the width of a card is enough to reject it, for if a card one millimeter taller stands in front, the fingers cannot half as readily turn to the one behind. To secure this extreme accuracy which is the peculiarity of the card catalog, is the despair of many paper dealers who after repeated trials have declared it to be impossible except at large extra cost.

The arrangement of the matter on the card so as to get it in the best light prohibits the old fashioned multiform indentations which confined the matter almost entirely to the upper side of a diagonal from the upper left to the lower right-hand corner. The class number is best placed in the upper left-hand corner where it is readily seen. The title after the initial indentations, should be written the full width of the card, thus bringing

* Half?

the lines nearer the top of the drawer where they can be more easily read, and leaving space below for notes. Diagrams illustrating the best arrangement and the manner of filling the cards will be given in a succeeding number for the guidance of catalogers, or sample cards which have been spoiled for catalog use by some errors and yet will serve to illustrate, may be had of the Library Bureau without charge.

CARD CATALOG GUARDS

In public libraries it is absolutely necessary to lock the cards into the cases to prevent removals or displacements, which are usually unintentional but none the less destructive. The form so widely used of two wires running over the tops of the cards is practically worthless being no more than a hint that the cards should not be taken out. For, as every user learns almost at sight, the slightest bend of the card towards a horizontal allows it to be removed almost as readily as if there were no wires, while the two wires are an annoyance to every one who tries to read the cards.

The best guard is a steel rod thru a hole punched in the center of the bottom margin of the cards, the center of the hole being one cm. above the bottom of the drawer. This is better than the hole in the left corner used in many libraries, where the leverage is so great that a reader carelessly picking up the card by the right-hand corner is very apt to tear it from its fastenings. The rod in the center also helps to balance the cards in proper position in the drawer. This rod should also be locked in position, or the motion of the drawer back and forth will tend to throw it out of place; then when the drawer is quickly closed the projecting rod strikes the back of the case and is driven forward and is liable to cut the cards and sometimes to spoil the back panels. A screw thread on the front of the guard wire, working in a socket in the front of the drawer, holds it in place, but is objectionable because the thread acts like a saw in passing thru the cards as it must every time a card is inserted or removed. The best plan is a lock at the back of the drawer, made by bending the rod at right angles and revolving it thru a quarter circle hollow covered by an escutcheon. This is the most satisfactory device which has ever been submitted to the A. L. A. committee.

With this form of guard one inserts a card by opening at the desired place, with the thumb and finger revolving the rod to the right to release it when the L hook at the end comes opposite the key hole in the escutcheon and the rod easily pushes back; the card is inserted, the rod is drawn forward again and a turn to the left locks it behind the escutcheon plate. The rule in turning is: to Right Releases, to Left Locks.

CARD CATALOG DRAWERS

To avoid cutting out the cards in passing the locking rod thru them the drawers must be no wider than necessary for the cards to move freely, otherwise some get jogged to the left and some to the right, and the pointed rod when pushed thru to be locked into position is liable to cut out the sides of the hole in the cards.

Libraries having cases with drawers made according to the earlier recommendation of the cooperation committees, wide enough to hold a postal card, will find it worthwhile to substitute a thicker partition and alter the holes for the guards, or to put thin strips of wood or card board at each side of the cards so as to hold them in position. It was found that so few people inserted postal cards in these cases that the recommendation was not a wise one. It is much easier to trim off a half cm. from the occasional postal card.

The height of the drawer should be no greater than necessary barely to clear the tops of the guides when standing upright. Most drawers are made deeper, and as a result a part of the light so essential to satisfactory use is shut off. Where, as often happens, the space for cards is very limited quite a little can be gained by compact construction so that no unnecessary space is given to the rails and uprights and to waste space below the drawer bottoms. Another important point, very apt to be overlooked, is the arrangement of the drawers in cases. The best depth of case is 50 cm. Shorter drawers are more apt to be pulled out on the floor and cost more for a given library. Longer ones become too deep for convenient consultation of the back cards.

All drawers should be made with a center partition, thus giving two tiers of cards side by side for economy of construction and because a reader takes at least the space of two

drawers in standing before the case. Nothing would be gained by making the costlier single tier drawers. Drawers with three tiers when loaded with cards are too heavy for many readers to handle easily. It is quite a mistake to put too many drawers in a tier; as a result the upper drawers are too high and the lower ones too low to be consulted with any comfort, and as soon as the catalog is much used it often results that two or three readers wishing to consult the same tier have to wait for each other to their mutual annoyance. This failing is so serious that some of the most experienced librarians are now making the catalog cases in a long row with only one, sometimes two drawers in a tier, instead of the old fashioned eight or ten. If space allows and the extra cost can be afforded this is a great convenience where there are many readers; but in most libraries cost and space will forbid this construction and the readers can be satisfactorily accommodated with a case three drawers high if the large cards are used and four drawers high for the index size. This height was selected after many measurements and experiments and consultations as to the best standard.

Here and there a library is trying the experiment of providing stools in front of catalog drawers placed at table height and to be used sitting. It is a question whether this will justify the extra space required, tho it is certainly a great added comfort in reference libraries where scholars spend an hour or more studying the catalog. On the other hand physicians urge that it is a blessing to readers who spend nearly all their lives sitting to do a little of their work in an upright position. Certainly the catalog will require less room and will be less likely to be clogged up by readers sitting in front of it after they are really thru their consultation if it is kept in the ordinary form without chairs or stools; so that each person has every inducement to leave it free for the next as soon as the necessary reference has been made.

Another important feature very apt to be overlooked is the tendency to make long, solid cases. It is a great advantage for even a large library to have its card cases in sections not over three drawers wide, which makes a case 100 cm. long. This allows for an aisle between each three tiers and readers can work before every tier of drawers in the series, at the middle tier standing directly in front of it; at the two end tiers by standing partly in the aisle. In the solid long case every fourth

tier must be skipped to enable readers to work before all the others. It is a still greater advantage that these smaller standard cases, all of the same length, and depth and height, the length being just double the depth, allow of rearrangement whenever growth or changes in the building or changes in the growth of the catalog may make it desirable. The traditional long case of large libraries usually has but one available place; but these standard cases may be carried along in a single series, or in an emergency stacked in double depths thus making the old fashioned six or eight drawer tier; or can be put back to back; or in one of the most compact arrangements for four cases, two back to back, two others across the ends where their length exactly corresponds to the double depth of the two center cases. This makes a solid block of cards two meters long and one wide, so that readers may stand before each of the twelve tiers, making a complete circle of the catalog without wasting any space and yet allowing each one comfortable working room. Another advantage of using the standard sizes instead of the larger case is that the initial outlay may be so much smaller, for one case may be bought at a time as the catalog grows instead of providing in advance for the increase of ten or twenty years.

BOOK BRACES, SUPPORTS OR PROPS

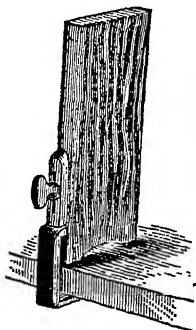
No one could treat a homely subject with the seriousness needed to give it the dignity of a scientific accomplishment as could Mr. Dewey. In his first volume of *Library Notes*, he practically settles the problem of book supports for all time.

These are but three names for the same device, and every library learns by sad experience how important a factor they are in preserving bindings, keeping the shelves sightly, and books upright. The ancient tome, with wood sides nearly a centimeter thick, would stand by itself; but many modern books have covers so thin that they are little better than flexible leather or stiff paper, and unless braced they "squash down" as does an unsupported pamphlet. Every binder is largely indebted to the carelessness of bookowners in this respect. Books half tipt over soon have the threds broken, the binding is ruined, and must be replaced. If the threds are strong, the book may stand the strain, but becomes so warpt into its unnatural position that it can never be straightened. We have tried for six months to warp back a book, with a result no better than a glue-mended window. To avoid these evils, scores of devices have been made, tried, and rejected as not worthy adoption; unsatisfactory in working, unsightly on shelves, taking up room needed for books, heavy, bulky, clumsy, with springs constantly getting out of order, adapted to only one use or to only one thickness of shelf, and too expensiv for wide use. The want has led to many efforts to supply it. The most natural device was to lay beside the book a block of wood. Indeed, our first stock of book braces, copied from Mr. Winsor at the Boston Public Library, were cubes of wood about 15 cm. on each edge, and cut thru diagonally. This gave 15 cm. against the book, 15 cm. on the shelf, and the hypotenuse connecting the two. These took so much room, and were so easily moved from lack of weight, that we should not care for a fresh supply as a gift. After these came the prest brick, covered with paper. The common

brick was not true enough to stand firmly on the shelf. This took less room and held the books better; but they were dropt and broken, or broke something else, were clumsy on shelves and off, and would not hold up tall books. Some to this day use and claim to like these bricks, and say that the space taken is not a strong objection, because if there is space on the shelf it makes no difference, and if there is no space, then the brace is unnecessary. They forget that when the shelf is filled the brick must be taken out to make room for books, and must be put *somewhere* to store it, and that two books will go anywhere that one brick can be put.

MASSEY BOOK SUPPORT

1878 seems to have been the golden age of book braces. The Cooperation Committee of the American Library Association reported in March, '78, as follows:



"We have given much time to experimenting with a large number of devices for keeping books upright on the shelves. The Museum received recently from A. P. Massey, librarian of the Cleveland Library Association, a sample which, on trial, seems very much superior to any of the others. The Massey support is stronger, cheaper, holds the books more firmly in position, can be adjusted more readily to any place, either from the shelf above or the shelf below, and can be moved along easily. It has no springs or delicate parts to get out of order, but consists of an iron casting, a thin black walnut book, and two screws. The wooden book stands on the shelf like other

books, and its back and sides can be used for the class number or memoranda or notes of any kind. The casting is shaped like a capital L, the lower part being fan-shaped. The upright piece of iron is screwed to the edge of the wood, so that a space just wide enough to admit the shelf is left between the bottom of the block and the fan-shaped bottom of the iron. The bottom of the block is hollowed, so that it rests on two bearings, giving a firm hold of the shelf. It can be slid along, taken off, put on, etc., very quickly; the bearings and the castings together form a strong spring. The supports once adjusted to the thickness of the shelves in the library, they can then be put up anywhere as quickly as a book. The committee consider these supports of the greatest value, and expect a very large demand for them. Samples will be sent by mail on receipt of 25 cents. Give exact thickness of shelf in ordering. The supports, handsomely and strongly made of black walnut, shellact and varnisht, and adjusted to the shelves of the library ordering, will be furnisht for 15 cents each, \$1.35 for ten, or \$10 per 100."

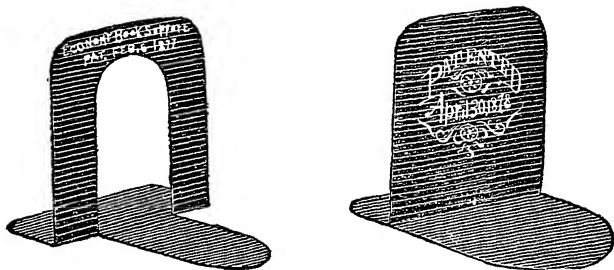
After the impracticable springs and devices, here was something that promist to be a solution; but in May, '78, the same Cooperation Committee says:

"Patent Book Support. Since the Massey book support was made and reported upon, this new candidate for favor has been submitted to the committee. It certainly possesses some great merits not in the other, and it is a question whether it may not be preferred by those trying both. Special arrangements have been made with the makers and patentees, and the support will be furnisht to libraries on the most liberal terms. Retail price, 25 cents each."

L. B. IRON BOOK SUPPORT

This refers to the iron brace known as the "Economy," which was described as follows: "Of the simplest construction, it economizes space, subdivides shelves, and is cheaper than other supports or racks.

"Advantages. 1. It does its work more perfectly than any other. The long plate on the shelf under the books is held firmly in place by their weight. The shorter plate gives to the face which holds the books upright, a spring, entirely lacking in all supports previously used. Thus the only objection to the otherwise perfect sheet-iron device is removed.



"2. It is simplest. There are no springs (tho the peculiar shape gives a strong spring action), screws or joints, to get out of order, or to injure fine bindings by scratches. It is a single piece of iron, handsomly finisht.

"3. It looks best. While all other supports are unsightly, the plain form of this is neat, and the decorated patterns are highly ornamental, and suited to the parlors and libraries of the most elegantly furnisht home.

"4. It is most durable. Being a solid piece of iron, of simple shape, greater durability is impossible. The iron is specially made for us, and, like the workmanship, is the best.

"5. It takes least space on shelf or table. The thickness of the iron is only that of a few leaves, so that the space occupied is imperceptible a few steps distant. It packs in least space, nesting together so that ten take no more room than one of the old supports.

"6. It is cheapest. We have the iron made of the best weight, quality, and size, as determined by careful experiments. The durability is simply unlimited, and it would still be cheapest sold at three times the price.

"7. It has the merited endorsement of the first librarians in the world.

"8. Every support is sold subject to return, if it fails to give full satisfaction.

"Two distinct uses. Singly, the best known device to keep books upright on shelves. In pairs, the best adjustable rack ever made. The tongues just slip thru the opening, so that two open supports will hold firmly upright a single sheet of paper or a score of books. Each support makes a firm end for the column of books between them."

Here, evidently, was the coming Book Brace, and the patentees showed their entire confidence in trial by offering to send a sample free to any library applying.

In July, '78 (see *Library Journal*. 3:192) Mr. Cutter, chairman of the committee, made a new point in favor of the Massey over the L. B., because the wood edge served for labels; while the Secretary added the point against it which has proved to be its most serious defect; viz. "Either the wooden or patent iron support is very much better than any of the old devices. They are cheaper, more convenient, and more effective. The wooden is the cheaper, and with the improved model now being made it will give the greatest satisfaction. It is, however, *worthless unless the books are kept at the front of the shelf*. If they are pushed back, the weight coming on the long arm of the lever turns the support off the shelf. Books kept at the front edge look infinitely better than when pushed back; their titles can also be read much better. Those pushed back keep somewhat cleaner from dust, and it is a little easier to push a book against the back than to make it range evenly in front.

"The iron support costs a trifle more, but the more this is tried the better it is liked. One library, after trying 25 for a month, ordered 1,000. The many different uses to which the iron support can be put make it an exceedingly valuable addition to every part of the library and work-rooms. From personal experience in their use, we strongly recommend them. Little devices of this kind, which save time and trouble, and preserve the books from injury, are good investments for the poorest libraries."

By October, '78, the committee had a new point for the Massey, in a thumb screw, viz.:

"*Massey Book Support—New Pattern*. This support has been adopted by a number of libraries, and has given the fullest satisfaction. New castings have now been made of improved finish and form, and all orders can be promptly supplied. With the thumb screw, the Massey support can be fitted to any thickness of shelf almost instantly, and, when desired, can be made so tight as to serve as a permanent partition. This is the most convenient form to test as a sample, as it can be applied to any shelf. A sample mailed for 25 cents, to cover wrapping and postage. Those who have tried this support claim it to be the best ever invented. Every librarian should give it a trial."

But in December, '80 came this palinode from the inventor:

"The thumb-screw on the book-supports, where people have access to the shelves, is a great nuisance. They think they must loosen it in order to move it, and then they either leave it unfastened or set it so tight we cannot move it. I am going to replace them with round-headed screws." To this was added:

[This note from the inventor may save money. We agree with him that it is better to use the cheaper support where the public has access to shelves. For private libraries the thumb-screw allows of adjustment, but in fact the shelves are apt to be of the same thickness, and for the rare cases otherwise it is only a moment's work to loosen the round-head screw and re-adjust it. This style costs 15 cents, and that with thumb-screw 20 cents; so we recommend the cheaper for nearly all uses. In fact, the iron Economy Book Support is used by libraries vastly more. It takes no room and fits every possible shelf; but some eminent librarians prefer the wood.—M. D.].

LAKE GEORGE BOOK BRACE DISCUSSION

Then there was a lull of five years, during which 99 in every 100 chose the iron brace. At the Lake George Library Conference, September, '85, a support, practically the Massey, was described and the following discussion ensued, which we copy from the records:

MR. DEWEY—Tell us how they work. Every little while I find some new support, and, being determined to have the best, and give all candidates a fair trial, I buy a sample lot, but after a few weeks' trial I want to sell them out for half price.

MRS. SANDERS said the support shown by Mr. Foster held the books firmly and perfectly well, but cut into the wood shelves badly.

MR. W. A. BORDEN—If you put a book back on the shelf hastily, and push it in both sides this support at once, it injures the book seriously.

This was confirmed by two other speakers.

MR. W. I. FLETCHER—The difficulty with that support is that it costs too much.

MR. F. H. HEDGE—The Cornell support would have to be much larger for the bound folios or heavy quartos, and I do not see how they are to be efficient.

MR. J. L. WHITNEY—The only thing suitable is to put in a permanent support, but those vertical partitions take up room. There ought to be some means of supporting books of the size of *Harper's Weekly*.

MR. R. A. GUILD—What is the matter with the japanned iron support made by the Library Bureau? We have used these for many years. I have never seen anything better.

MR. DEWEY—I have tried a half dozen kinds that reacht above and below the shelves, and did not find any that workt in a wholly satisfactory way. The three-cornered block, which I copied from Mr. Winsor at Boston, was costly, took a great deal of room, and would hold up only light books. We tried the coiled wire Lowell book support for a little while. In fact, we make it a rule to try two or three dozen of each new kind invented, by putting them in use in a tier of books largely used, so we can study practical results and compare them with our older styles. The brick covered with paper I found cost about as much if a prest brick were used, and the others were so uneven that they would not stand upright. They had the faults of the blocks, with a new one of their own. Being so heavy they endangered one's toes, and in falling were liable to break. We have had five or six devices that hug the shelves by a spring, but I have found none that fitted various shelves and workt so that I should care to accept a supply as a gift. The only thing that has stood the test of trial with us is the L. B. support which Mr. Guild reports as so satisfactory. We have rejected all others in favor of that. The only fault in it is that careless boys may crowd a book astride the iron plate, thus injuring the leaves. Then, sometimes, its very compactness is an evil, as they get pusht back out of sight. As it never wears out, or breaks, or comes to pieces, being a single piece of iron, we find it cheapest and best, but would like to find one with its merits, without its faults.

MR. W. F. POOLE—Those of the coiled wire device are not stiff enough to support a book.

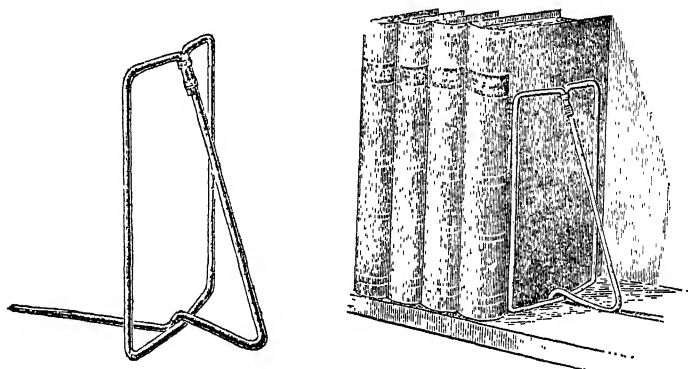
The Lowell support was a neatly coiled wire, which looked plausible, but had not strength and stiffness enough to be of service.

MR. DEWEY—I have been experimenting with an attachment to the L. B. support, which hooks over the front edge of the shelf and prevents its getting pusht back, and also shows so

plainly that there is no excuse for crowding a book on it. This hook we have also had made so as to hold the regular shelf label."

BUFFALO BOOK BRACE

At Milwaukee, July, '86, J. N. Larned, of the Buffalo library, one of the clearest headed librarians in the country, submitted a new brace, which aims to avoid any possibility of turning on the shelf, by carrying a tongue under the books, in a groove running the length of all the shelves. The Library Bureau, as usual, was ready to try the experiment, and we wait the result.



The objection is that, unless adopted before the library is shelved, it seems hardly practicable to take out all the shelving and have a groove cut in it.

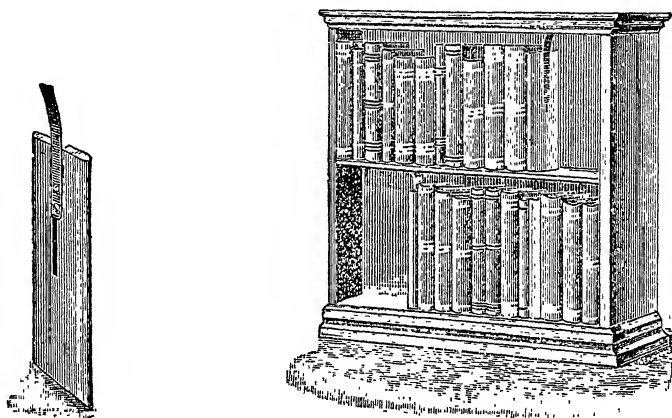
Mr. Larned's opinion has great weight, and most of us will wish to try the new brace before we declare him mistaken in thinking it the best.

It costs 15 cents each, or \$12 per 100.

CROCKER BOOK BRACE

The Crocker Brace had the misfortune not to be properly described or understood when spoken of at Lake George, but some librarians began to use it and told others of their success. The commendations were unusually strong, and it seemed that

something better than all that had gone before had at last been invented. We ordered a supply, but the trial was with the usual result. We went back to the L. B., but later we found that an imperfect lot had been sent us, which Mr. Crocker replaced at his own expense, and then we found that the commendations had not been too high, for, as he claims, it workt as it lookt, "like a book." The cut gives the idea of this latest candidate for first place, patented and manufactured by Rev. Henry Crocker, Bristol, R. I.



The Crocker Library Book Brace is a plate of wood 8 cm. wide, 1 cm. thick, and 17 or 26 cm. long, of beech, with edges rounded and surfaces nicely finisht, so that nothing can injure the finest binding. A fine steel spring, attacht by screws and nuts in a slot, is adjusted so that the length from tip of spring to foot of brace is just one *half inch* more than the space between shelves where it is to be used. The foot of the brace is placed against the books with the spring outward. On raising it to a vertical position, the tips of the spring engage the under side of the shelf above, effectually preventing any forward thrust of the books. The spring is slightly curved, so that it is placed in position with perfect ease, allows the books to be removed in front of it without resistance, and can be moved toward the books to fill any spaces with the ease of an ordinary book. It holds the books firmly at the top, where a small force is so

much more effective than a large one nearer the bottom. It supports with rigid resistance any column of books even after they have been warped by previous neglect. It is made in three lengths, and will support the tallest folio as firmly as it does an octavo, a thing impossible with any other brace on the market.

As the most practical evidence, we quote from testimonials furnished us by the inventor, that leave no room to doubt the practical value of the invention.

Mellen Chamberlain, Librarian Boston Public Library, says:

"The Book Supports furnished this library by Mr. Henry Crocker prove on trial to meet requirements better than any which we have yet tried."

C. A. Cutter, Librarian Boston Athenaeum, says:

"I have had the Book Supports made by Henry Crocker in use for some time and like them much. They are the most effective and the easiest to move on the shelf that I have tried. I have not yet discovered any drawback. A favorable report has also come from the Boston Public Library."

J. Warren Upton, Librarian Peabody Institute, says:

"It is superior to some two or three devices used by us for the same purpose."

W. E. Foster, Librarian Providence Public Library, says:

"Your Book Support, in common with three contrivances for a similar purpose, is in use on the shelves of this library. On account of its simplicity I have found it a very satisfactory method of holding up the books."

R. A. Guild, Librarian Brown University, says:

"In my judgment the best thing of the kind; certainly the best that I have seen."

J. Harry Bogart, Librarian State Law Library, R. I., says:

"We find them, after a trial of nearly six months, the handiest, simplest, and most convenient support yet brought to our notice."

G. U. Arnold, Librarian Rogers Free Library, Bristol, R. I. says:

"They give the book support where needed, at the top, thus preventing the toppling over of the books, which is so annoying. They do better service than any other kind used by us."

E. W. Hall, Librarian Colby University, says:

"I have put into use your device for supporting a row of books when the shelf is not full, and find that it answers the purpose most excellently. In some respects it seems preferable to the Economy Book Support, a few of which I have in use."

J. C. Houghton, Librarian Lynn Free Public Library, says:

"I prefer yours to any others which I have seen."

Just as strong a series of endorsements could easily be secured from those who prefer the L. B. Support, and a library will do best to try both before deciding which it will adopt. Mr. Crocker shows his faith in trial by an offer which we copy from his circular.

"Believing that I have hit upon a very effective and convenient device for supporting books, and wishing to give librarians an opportunity to prove its merits, I will send to any library, upon request, a trial lot of 50 to be tested by actual use for 60 days, and to be returned to me at the end of that time if not satisfactory. Try them. Price \$12.50 per 100.

Henry Crocker, Bristol, R. I."

The Library Bureau will doubtless do the same with the iron book brace, tho the test can be made as well with five as with fifty, and the expense of returning would doubtless make it cheaper to buy only a few for trial.

BOOK BRACE SUMMARY

Finally, we have given these various stages of the book brace development in verbatim extracts, in order to show that a device, which today is so much better than anything we have known that we give it cordial endorsement and recommendation, may next year be so clearly improved upon that there is nothing to be said in its favor. Something may be invented during 1887 so much better than the Crocker Brace that that will be abandoned.

And so in every department of library economy. The study focalized on these practical details is constantly producing market improvements, and those who would get the best and cheapest must keep themselves posted up to date. The Library Bureau undertakes, whether it has the article for sale or not, to be thus thoroly posted as to the latest improvements, and to tell inquirers frankly what they are.

To sum up the book support question. There are now three worth consideration. The Massey is least liked, and, tho the Bureau has a large stock on hand which it wishes to sell, it recommends no one to buy them till after trial. There are, here and there, people who may prefer them for some uses, but such cases are very rare. They work for large books, by being slipt bottom side up on the shelf above. The fan shaped iron is somewhat in the way of the books above, but this application is very convenient. The L. B. Support may also be used in this

same way by putting on a little clamp, and this plan works much better than any other except the Crocker. It doesn't scratch the shelves, and requires absolutely no adjustment under any circumstances. The list of its claims we gave above.

The Crocker has the advantage accorded the Massey, of an edge suitable for small labels, and is less likely to have a book put astride than the L. B. There is nothing under the bindings like the tongue of the L. B. It packs in smaller space and handles more conveniently than any other. Chiefly, it seems best adapted for tall books, as it gives its support at the top instead of from the bottom, where it is so much less effective. Its "outs" are the necessity of changing the adjustment in moving to shelves differing much in height, and the fact that it scratches or marks a trifle the under side of the shelf above. This marking does not show unless looked for, and we incline to think that the Crocker is the best one devised; at all events, we recommend all libraries to try it before adopting anything else.

Who will go a step farther and improve on our best book braces for 1887?

FIXTURES, FURNITURE AND FITTINGS

In the papers prepared for the World's Library Congress at the Columbian Exposition, 1892, Mr. Henry J. Carr reported on the above comprehensive topic. He mentions in detail all the essential equipment, and we have omitted only the section on Book storage and shelving, treated elsewhere. Editorial notes signed by Melvil Dewey add to the reader's interest and show that the decisions of one were not all accepted by the other.

The topics covered by the foregoing alliterative and comprehensive heading might, in one sense, be held to include almost everything pertaining to a library, except its building or quarters and its stock of literature.

Under certain other heads, likewise assigned for similar treatment at this time, however, there is likely to be due consideration of the necessary appliances connected with each of such particular topics. It is proper, therefore, that this paper shall, so far as may be, refrain from trenching on those special fields.

As to any conclusions regarding best methods or the most approved forms of a library accessory which may be drawn from current practice of the users thereof, it must also be kept in mind that the older libraries are more often unable to change, and so of necessity continue devices which later libraries free to act at pleasure as carefully avoid. Therefore answers to queries, or statistical circulars bearing on many library furnishings, are not always the best basis for opinions, nor likely to show fully the real progress made in such matters.

One of the earliest and most effective agencies toward a betterment and reasonable uniformity in library supplies grew immediately out of the formation of the A. L. A. in 1876, thru the acts of its cooperation committee. The reports of that committee as given in the *Library Journal* for several successive years are yet valuable reading for their full discussions of the several matters under study. From the work of that committee

grew a cooperative supply department (aided largely by the personal enthusiasm and persevering support of one person), afterwards fostered thru various vicissitudes to later and present survival as the Library Bureau.

With no intent to advertise, but rather for convenient reference and brevity in the present paper, as well as for aid to seekers, no hesitation is felt in citing the ample and comprehensive illustrated catalog of the Library Bureau as being both an available and very desirable guide in fitting up a library. Little comment will follow herein, therefore, as regards the major part of the articles described in that publication, since its chief library specialties represent the tested and elaborated ideas of ample cooperative experience, and the purchasers thereof may reap full benefit with a minimum of trouble to themselves.

As to the innumerable stationers' articles used by librarians, the personal preference and experience of the particular user must be the guide, so that consideration of those items is outside the scope of this paper.

GENERAL PRINCIPLES

Good principles to observe in procuring or planning the furnishing of a library are: (1) Usefulness and adaptation to the circumstances of each particular case, and (2) true economy may often be practiced in obtaining the better, tho more expensive, article at the outset.

The limitations of the human form and convenience are no less factors in the case, and necessarily have much to do with establishing certain sizes and shapes, e. g., a library counter, of a height to match certain other decorative finish and woodwork may, in the long run, prove an unmitigated nuisance because just too low for convenient service standing and too high to use sitting. Undesirable tables with massive and elaborate legs and fancy corners, and chairs having extraordinary seats and terrific backs, are not an unknown thing in some libraries where so-called artistic features have been allowed to prevail.

Libraries must almost inevitably be maintained at an extreme of economy, therefore every superfluous carving or molding which serves as a dust catcher means so much more janitor's work and consequent burden. So in the use of dark woodwork and wall decoration is entailed years of penalty in added cost of lighting over that needed for the same interior in light colors.

COUNTERS AND DELIVERY DESKS

These are usually made to correspond to the features of the particular building, and personal preference may be allowed sway in the style and interior arrangement of such articles.

Conforming to average humanity and kindred uses, as in banks, railroad and other public offices, counters where customers are to be served standing are most convenient when 42 inches high; this height, too, is easy for writing. The same result may be attained by a counter 3 feet high having a desk of 6 inches more superimposed. If to be used sitting, then 2 feet 6 inches is an average most convenient height, as for tables and office desks. A counter top should be of fair width, say 2 feet or more, and project considerably on each side beyond the support, thus serving to protect the front from being marred by feet, and also making it feasible for clerks inside to sit down.

Good light at counters and delivery desks, both daylight and artificial, is an essential often overlooked.

TABLES AND READING DESKS

For library service the less that architects and furniture designers of the "high art" order have to do with tables, desks, and chairs the happier is apt to be the result to the steady users of such furnishings.

Tables. A substantial construction, plain rather than ornate, and not too large or heavy should be the rule. From 29 to 30 inches* is a standard height, and casters are not desirable. With a top of 2 feet 10 inches by 5 feet, six persons, two on each side and one at each end, may be seated without crowding. If 6 feet long it will admit of putting three at each side, while for proportion's sake the width may be 3 feet. Slides (or movable shelves), under the top, placed at suitable intervals, are often of great service. For smaller tables, those 2 feet 6 inches by 3 feet 6 inches, and also others 3 feet square on top, prove convenient.

* Tall people cannot sit with comfort at a 29-inch table, and the length from knee to floor cannot be reduced; but it is easily increased by a hassock for short readers who use a higher chair. Some libraries which study comfort most adopt 31 inches as standard height and then have adjustable chairs and hassocks so that short and tall readers are both suited.—M. D.

In rooms for juveniles it may be desirable to make some tables of less than standard height, but usually a variation in the chairs accomplishes the same object.*

Reading desks. Reading desks, as distinguished from tables, are more generally made for special instances and are presumably fixed rather than movable. Like counters, therefore, they should harmonize with the finish of the building and fit the space at command. Dimensions and heights should be proportioned to the probable users, as before suggested.

Office and cataloger's desks. These may be made to order, but at present a perfection of style and convenience, at moderate cost, is found in many regularly on the market, so that a suitable supply is most simple and readily attained.†

* Foot rests or hassocks ought to be provided, as it is cruel and injurious for a child to sit for hours with feet dangling above the floor.—M.D.

† Much of the cooperative work which has accomplished so much in the past seventeen years is due to adoption of certain standard sizes for cards, sheets, blanks, and for cases, trays, drawers, and pigeonholes in which they are used or filed. It is a period of unprecedented growth in libraries and as a result there has been a change of rooms, methods, and fittings to meet the new and larger requirements. Convenience and economy make it as important to work by standard sizes as it is in a factory. It adds nothing to first cost, but saves time and money at every readjustment, because the parts often interchange in ways entirely unforeseen at the outset. Those who have tested the principle urge its adoption most earnestly.

Much is accomplished by adopting a series of standard sizes for an individual library, but much more is gained without added cost if the standards most widely used by other libraries are taken without change, omitting any not needed and supplying in the very rare cases where some not in the list are really required. Nine times out of ten, one who can free himself from prejudice will find that the standard size nearest what he has in mind is really just as satisfactory as the odd one to which he inclines simply because he has become accustomed to it for that use. The cooperation committee studied this question at its first appointment in 1876 and its work has been kept up by the library school. For many years certain standard sizes have been widely used without change and are much the safest series to adopt, both because of their wide adoption by others and more for their merit as representing so much experiment and experience. These are, for slips, cards, and blanks, V (visiting-card size), 5 by 7⁵ cm.; P (postal-card size), 7⁵ by 12⁶ cm.; N (note), 12⁶ by 20 cm.; L (letter), 20 by 25 cm.

The standards most used are P and L. V is used for call slips and compact indexes where little goes on the card. C (check size, 2⁵ by 5 cm., or just one-third V) is used for coat checks, tags, labels, etc. R (receipt, 7⁵ by 20 cm.), four V's together, is used for receipts, bank checks, drafts, and fits pockets, envelopes, etc., that hold bank bills. Half this length, or two V's (7⁵ by 10 cm.), is used for catalog or index cards for commercial and other work in which, instead of book titles, short entries are made, for which 10 cm. give ample length. In the same way I (index) size (5 by 12⁶ cm.) was largely used for book titles, tho of late years very few libraries adopt it, as all cooperative cataloging is based on P size, which experience has shown to be much better in most cases.

L size is the largest that goes on the standard shelf, of which it represents a section 2 cm. high and 20 wide. For blank books, letter heads, office forms, manuscript for printer, and nearly all uses, this size

Chairs. Much the same is true regarding chairs as of office desks. Yet for fairly good appearance, durability, and average comfort, probably the well-known bent-wood chairs are preferable. The foreign chair is stronger and of better finish, but the American make is good and its rattan seats often prove more satisfactory than those imported. Some patterns of simple dining-room chairs have also been found quite satisfactory and serviceable. Wire hat racks placed beneath the chairs at small cost serve a good purpose.

For consulting printed catalogs and lists in the delivery room, a counter top or ledge of table height, provided with round-top store stools, fastened to the floor at needed intervals, is a convenience.

Umbrella stands and hat racks. For the former no really satisfactory article is regularly "in the trade" of either furniture or hardware dealers; nor are the usual combined hat and umbrella stands for hallways in residences satisfactory for libraries.

For limited use the foreign made "bent-wood" stands or trees, with drip pan on the floor, are convenient and ornamental, without being very expensive. Such, with hat holders beneath the chairs, provide moderate accommodation without annoying frequenters of the library or being much in their way.

or something very near it seems to have been independently evolved in all sections as most convenient. For printed books it is modified to M (magazine size, 17⁵/₈ by 25 cm.), so largely adopted by magazines. This is the largest book that goes on standard shelves. Trimming by binder equals squares of boards, so that the bound copy is the same height as the paper. This is also a favorite size for library catalog and bulletins.

The sizes have from the first been given in the international or metric measures, which should be followed instead of the rough equivalents in inches, as the difference between a card 7⁵/₈ cm. high and 3 inches is 1/25 of an inch or just enough to prevent proper handling of the card catalog. On this account it is unsafe to use catalog cards made by ordinary stationers or paper dealers. Their method of cutting usually results in variations of 1 mm., or one twenty-fifth of an inch. If a card 1 mm. lower comes between two of proper height, the finger in turning will bridge from No. 1 to No. 3 and No. 2 will be skipped. Novices not understanding this sometimes make costly mistakes by failing to get accurately cut cards, which cost much more.

For pigeonholes and small cases that stand on shelves, 25 cm., or the same as the shelf, is the standard height. For taller cases the height of two or three shelves is taken, when the thickness of the shelf removed may be added. As to length of shelves to hold cases, the 75-centimeter shelf, which is best for mere storage of books, is much less convenient as a common multiple of the boxes most used for standard size than is 93 cm., or 36³/₈ inches. It is wise, therefore, to use the 93-centimeter shelf instead of the 75-centimeter in the librarian's room, near the loan desk, and in corners and other places where desks are apt to be placed, or for other reasons where these conveniences may be in demand.—M. D.

For extreme cases and large constituencies, articles of the kind must be specially designed.*

CARPETS

Best quality tile or inlaid linoleum (a sort of semicork article firmly pressed together), in which the figure of the pattern is carried thru the entire thickness of the fabric, is probably the one most durable floor covering to be had at moderate cost. It is tolerably noiseless and when properly laid stands long wear and continual cleaning without becoming unduly shabby "Corticine" and other names describe a kindred article; but under either name, figured patterns show dust less than solid colors. The lighter the tint, also, the more pleasing is its effect and the less it shows dirt. Number 1 (or "A"), printed linoleum is a cheaper grade, in which the pattern is on the surface only, and will answer where there is not too much wear.

Brussels carpet can be had at no more, or perhaps less, first cost, but wears out sooner, and all carpets are so troublesome as regards dust, moths, etc., besides needing to be frequently taken up and beaten, that it is well to avoid them.

Matings of all kinds are very objectionable except for express use as dirt catchers in passageways and aisles, where they can be frequently removed and cleaned.

READING ROOM FITTINGS

Tables and chairs for readers have been already touched on. Some provision must be made for reading current periodicals. Happily the day has gone by for secluding all such behind counters, to be handed out only on individual call, one by one. An exception, however, may possibly be necessary in some larger cities owing to mixed population and the influx of a floating and tramp element. Otherwise the several monthlies and weeklies kept on file may be put in suitable binders, or temporary covers, and displayed either in racks or on tables having partitioned

* After much unsatisfactory experimenting we found a cheap device called the "Midget" best. It consists of two rings 3.5 cm. in diameter attached to a metal base, screwed on the baseboard or any piece of furniture. It could be attached to a chair leg. A little drip cup 4 by 5 cm. and 4 cm. deep hooks on this so that this tiny attachment, which is hardly noticed when not in use, holds two umbrellas out from the wall or furniture, the ring 11 cm. above the cup holding the umbrella in position. It may also be used for canes. Its chief merit is that it takes no room.

intervals or compartment tops; or else in bins or pigeonholes in numbered or labeled cases. Such methods work well and must be determined by the room at command and the constituency to be served.

For newspapers, if such are supplied for reading, still different treatment may be needed. For display on wall racks, to be read in place only, there is demanded a disproportionately large standing or sitting area. If in hand files they soon grow inconvenient and unsightly; and if in pigeon holes or on call only, they require much care and attention or else disappear too early. There is doubt whether the function of a public library is more than to obtain and carefully file away for permanent binding all local papers, without maintaining the average public newspaper reading room in this age of overwhelming numbers of cheap publications of that kind and the lack of much, if any, benefit to their readers.

SPECIAL APPLIANCES

Bulletin boards. Almost every library finds desirable a bulletin board or place for notices. Many make quite a feature of posting lists of new books, query lists, and special reading notes, etc. Considerable ingenuity may be exercised in such matters from the simple slate or blackboard, or tack-sheets of paper, up to an equipment of clips and grooved slats in which slips or cards can be placed and removed as desired.

Pamphlet boxes. Preservation of and ready access to pamphlets has likewise made demand for special accommodations akin to those given books. Various styles of boxes and wrappers have been tried, and satisfaction with any one kind, if attained, has depended much on the disposition of the individual user. Where expense and lack of space do not stand in the way it is probable that most pleasing results are had by means of the boxes or drawers, each fitted with a "follower" or "compressor," as in the well-known Woodruff and other document files, but made of larger sizes for library purposes.

For dictionaries, atlases, and like bulky works, liberal provision of special holders and revolving cases prove both an economy to the library and an aid to users.

Indicators. Our English and Canadian conferees find more or less use for the indicator, and deem it a praiseworthy adjunct to an active circulation. Tho occasionally tried in the United

States our people do not usually take kindly to the indicator on either side the delivery counter. To most libraries, therefore, the term conveys but a vague idea of a machine about which few know and which fewer care to use. The space necessarily occupied by an indicator is probably one of the greatest drawbacks to its use, if its first cost and expense of operation might otherwise be afforded.

Book trucks. Some form of book truck is one of the most indispensable equipments of a modern library, and much true economy will result from an ample supply, even if the first cost seems large. Made to meet a limited demand and not in quantities, the usual price is not unreasonable, and represents more actual cost and less profit than more widely used goods.

Catalog cases. As to catalog cases and kindred fittings, wherein we now have a tolerable uniformity, the rule that "the best is the cheapest" holds true in nearly all particulars. To find the best of those now made is fortunately not difficult, and in procuring such the buyer also obtains the result of an aggregate amount of contributed library experience not measured by dollars and cents.

Much more might doubtless be said on all the foregoing topics and on many which have been unnamed.

Such treatment, however, is more in the province of an exhaustive library manual, and needs to be accompanied by numerous illustrations, which speak better than words.

PNEUMATIC TUBES AND BOOK CARRIERS

Among the mechanical apparatus, essential to quick service in the large library where book stacks necessarily extend a long distance from the reading or circulating department, the equipment for carrying both books and messages is important.

Many carrier systems have not been found practical or at least suitable for adaptation to other libraries. The earliest of which mention was found was the following invention described by Justin Winsor at the American Library Association conference in 1877.

"The President then explained in the Conference a device for the automatic delivery of books which he had planned for use in the new Harvard building (six stories high). At the delivery desk there would be a key-board showing the digits to be combined into the various shelf-numbers. As the number of the book wanted was struck by combination, it would appear by an automatic connection on the floor where the book was to be found. The attendant there stationed would take the book from the shelf and place it in a box attached to an endless belt, whence it was tipped out at the other end into a cushioned receptacle close by the delivery desk, thus saving time, running, and expense."

The tower stack has involved the development of a very simple carrying equipment. Electrically controlled writing mechanism such as is installed in the University of Michigan Library is replacing pneumatic tubes. But the two systems here described by Mr. Bernard R. Green, superintendent of the building, when installed in the new Library of Congress building represented a distinct advance.

A sketch of Mr. Green appears on page 69.

Between the main Reading Room and the book stacks a set of pneumatic tubes for messages and readers' tickets is provided, and also a mechanical endless chain of carrying trays, by which a reader may obtain his book within three or four minutes after his ticket is handed in. A pneumatic tube, a telephone, and a pair of large carriers on an endless cable also connect thru a straight tunnel under the intervening grounds with the Library station in the Capitol, located near the Statuary Hall on the main corridor and main floor. By these means communication is immediate and books are carried between the terminals in four or five minutes.

Pneumatic Tubes. The pneumatic tubes are operated by compressed air, shooting short leather cases 2 inches in diameter in a few seconds between stations. Tubes run from the central desk in the Reading Room to each of the nine decks or stories in each stack. Having received a reader's ticket, the deck attendant in the stack finds on the shelves the volume wanted and places it on the carrier rack, whence it is picked up automatically by the constantly moving machine and delivered at the Reading Room desk to be handed to the reader. When returned by him, it may be at once sent back to the stack by the same machine.

Book Carriers. These carriers consist of a pair of parallel endless sprocket chains, 20½ inches apart, driven thruout the day, without stop, by a small electric motor at a speed of 100 feet per minute. The chains run over sheaves of such size that the book trays, hanging on trunnions between the chains, may pass freely over the axles at the several changes of direction along the route. The course of the carrier is wholly in a vertical plane from a pair of overhead sheaves 8 feet above the Reading Room floor at the Reading Room desk, vertically downward to the cellar, thence horizontally below the ceiling to the center of the book stack, where it turns vertically upward, passing thru all the stories to the top of the stack to a pair of sprocket sheaves at that point, whence it returns to the Reading Room by a parallel route.

Eighteen book trays are suspended to the chains at equal intervals. They are largely of aluminum, for lightness, the remainder being brass and iron. The tray bottoms consist of a horizontal set of parallel brass fingers, ⅝ inch apart, attached to the back of the tray and turning up slightly in front to prevent the books from projecting over. This tray thus passes flatwise thru similar flat sets of teeth, or toothed racks, located at the

terminal station in the Reading Room and at each stack deck. At the deck stations two such racks are provided, one at the departing and the other at the arriving part of the chain for the automatic delivery and taking on of books. In the Reading Room these two racks are both on the descending part of the chain one below the other, one sloping inward, the other outward.

All taking on and delivery by the trays occurs in the two vertical portions of the route. For this purpose a pair of planed, vertical, stationary iron guides are provided which are engaged by the traveling trays thru lubricated grooves or jaws on the sides, rigidly guiding the trays in their course.

The capacity of the trays is the equivalent of a quarto $3\frac{1}{2}$ inches thick. As it arrives at the delivery station its contents are combed off and slid into a softly-padded box.

The automatic action of the traveling tray is secured thru a set of ten movable spurs or keys on the back, one for each of the nine stack-deck stations, and one general key. When a book is taken on a dial is set by hand by which the general key is withdrawn, and the tray prevented from responding to any call to take on another book along the way until its load is discharged. If the book is proceeding from the Reading Room to a stack deck, the corresponding key for that deck is also projected and insures correct delivery. The capacity of the carriers may be increased by adding trays along the chains.

Carrier to Capitol. The carrier to the Capitol consists of a small, flexible, endless wire cable running over large sheaves at either extremity of the route, and having attached to it at opposite ends of the loop grooved trolleys which run between a pair of rails parallel to each other and to the cable thruout the whole course of a quarter of a mile, including that over and under the sheaves. To each of the two trolleys is hung a carrier large enough to hold a bound volume of newspapers, or a leather pouch, of similar shape and capacity, for smaller books and other matter. The carriers consist of a set of deep parallel hooks similar to the hanging human hand with the fingers turned upward nearly to the top. Being hung from the top like a pendulum, it travels always in an upright position. Its loads are therefore taken on by passing upward thru a corresponding toothed trough, and delivered by passing downward thru a toothed rack.

DISCIPLINE AND FURNITURE

Tables for adults and for children are regularly differentiated, but the designation of students as a third class for whom a new type of table and chair must be designed seems to rest with Mr. Henry, librarian of the University of Washington.

A sketch of Mr. Henry appears in Volume VII of this series, *The Library and Its Workers*.

In the January issue of *Public Libraries* is a brief account of the proceedings of the meeting of eastern college librarians. Some discussion is recorded upon the question of discipline in the college reading room.

I felt at the time that I might be able to offer suggestions toward the solution of that very vexing problem that every college and university librarian must face, especially in the undergraduate institutions where there are large numbers of young people whose educational career has not taken on a very serious aspect.

At the time I read the report I felt that I should like to say something but upon the theory that a man should not have a long term prison sentence for a first offence, I concluded to restrain myself and not break into print on the first complaint but now comes a similar question of discipline in a west coast college which leads me to justify this outbreak on the theory that a second offence makes apparent the need of a preventive.

It is doubtless true that the artistic effect secured by appropriate furniture for any public building does much to influence conduct of the people who temporarily occupy the building and I am thoroly convinced that the purely physical form and arrangement may become quite as effective. Both the artistic and the physical have much to do with conduct.

When I first took charge of a university library, I was at once convinced that the library could not accomplish either the purpose of the library—an orderly relatively quiet place to study,—or the purpose of the university—individual opportunity

to study—unless some provision could be made whereby each student could have his own table and his own chair out of elbow reach of his nearest neighbor.

To furnish each reader an isolated seat, an individual table and a light at first appeared impossible, because of the extravagant use of floor space. All other problems involved were easy of solution and in infinite space this would be, but university libraries are not so fortunate as to have that. I therefore set myself the task of devising furniture that would give individual tables and chairs and yet require no more space than is necessary when four or six or more students work at one table. All college librarians know that the reading table problem in the college library is a very different one from that of the public library. Around the college table are groups of young people, many or all of whom are personally acquainted and have a unity of interest, while neither of these conditions is likely to prevail in the public library.

When six young enthusiastic collegians personally acquainted, and with common interests, sit at the same table, one result is soon to follow,—a general conversation, which defeats the purposes of both library and college. If not all enter into the conversation, when some do, the others are driven from the table for self protection. In my judgment the common reading table in the college or university library is a failure and a serious detriment to good work and the prime cause of most disorder.

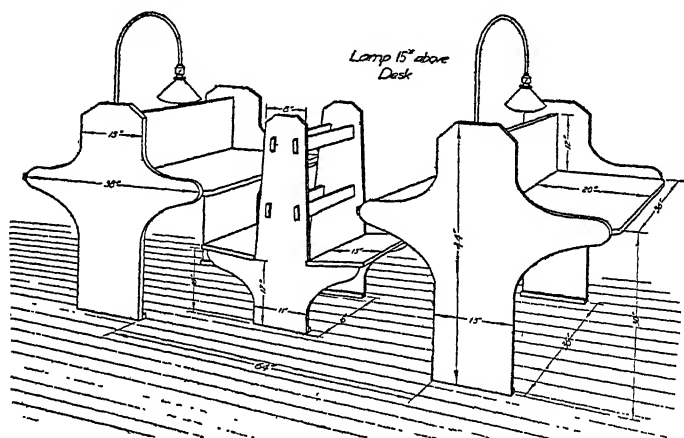
Believing as I did in the necessity of individual opportunity for the social good, I sought in the market for such furniture as would isolate the student and at the same time economize floor space. My friends declared it impossible and I was about to agree, when a device was suggested that seemed to make the end sought possible.

With a few suggestions from a mechanic, I designed a table and chair that isolates and economizes. In the reading room of the University of Washington we have tables that give each reader 5 square feet of table space, 3 feet from right to left, and 20 inches from front to back. Each reader occupies a stationary chair, at a stationary table, which places him three and a half feet from his nearest neighbor, except one who sits back to back with him. On this plan no more than two can get close enough to carry on a conversation and for even the two, with three and a half feet of space and a lamp between them, conversation

ceases to be a serious temptation. In short the furniture alone has wholly solved the question of reading-room discipline in a room seating two hundred fifty readers. Our furniture is not ideal in any particular as furniture, but it is intensely practical in the solution of a college library problem.

Is this plan extravagant of space?

With the isolation above described and an aisle two feet wide between each two rows of tables, and a three foot aisle entirely around the outer edge of the room, each reader occupies a fraction less than twenty square feet of floor space, and yet has exclusive use of five square feet of table space.



With tables 3 by 7 feet, each seating six readers and with the same aisle spaces between rows and around the outer edge each reader occupies $20\frac{1}{2}$ square feet of floor space and has only $3\frac{1}{2}$ feet of table space and that hemmed in and encroached upon by five other readers at the same table. With most persons, the close proximity of six persons, or even four at a table 3×7 absolutely prevents any concentration of mental effort, which is so essential to education.

As I have before said, the furniture that would accomplish the desired end was not to be had in the market, so we were compelled not only to design, but to manufacture in the wood shops of the University such as was needed. The tables and

chairs are not beautiful, yet the entire aspect of the room is rather pleasing than objectionable. The chairs are not thoroly comfortable and can be improved upon, yet at present they are not at all uncomfortable unless one occupies the chair for several hours continuously, or desires to lounge while at work. They are of course as hard as a board, but just as soft as any board, or chair that has a solid wood seat.

The one point I wish to emphasize is that the style and arrangement of the furniture makes work easy and inviting, idleness uninteresting, and disorder difficult. In a room with seating for two hundred fifty, we have no annoyance from the conduct of the students and discipline is a question of no concern. Six years has proved its success. Our students are not angels, they are as vigorous a group of three thousand young men and women, with as much red blood as can be found in the same number anywhere. With stationary tables and chairs two hundred students can leave the room at one time and at the end of a class period with very little annoyance to those who remain to continue their work. In order, however, to accomplish this ease of getting into and out of the seats, we cannot use a four legged table, so the table is so constructed as to have but two points of contact with floor. The tables are 36x40 inches with a partition across the surface, giving each reader as above indicated, 5 square feet of table space, 36x20 inches. As there is a passage way on either side of each table and this passage is but two feet wide, it is desirable to have on the right and left of each table such upright protection as will prevent the passer by from disarranging books and papers upon the table. The accompanying drawing, with specifications, will indicate how the table rests upon the floor and how the books and papers are protected from the passers by in each aisle. More comfortable chairs than the model here presented can be produced and one day will be produced, which may be similarly placed and will accomplish the same results; in fact ordinary chairs may be used if made fast to the floor.

I would not, of course, urge upon any one this particular design and construction of furniture but I would urge upon every college librarian who feels the need of better discipline in the college reading room that he furnish his reading room on the principles and general plan here described. It at once solves the problem of discipline and enables the library to

realize its purpose, of an orderly work shop and enables the student to accomplish his purpose in college—the concentration of intellectual effort.

The exclusive table space, the isolated chair, the economy of mental energy thru self directed discipline, all these can be accomplished at one stroke.

READING TABLE

A variation from the conventional as an aid in overcoming posture faults of boys and girls is advocated and described in *The Library Journal* by Caroline Burnite, then director of children's work for the Cleveland Public Library.

A sketch of Miss Burnite, now Mrs. Walker, is included in Volume II of this series, *Library Work With Children*.

The problems involved in the selection of tables for the reading use of boys and girls are several. The chief difficulty, however, is to secure a table which shall promptly correct posture on the part of the child users. Undoubtedly, many children have a natural tendency toward incorrect posture confirmed by using the tables in the children's room. It is noticeable in looking over children's rooms that more children sit incorrectly than sit correctly; either they sit on their spines and with their chins too close to the tables, or else lean far over their book with shoulders rounded, with arms spread, and with chins a few inches from the page.

A recently designed slant-top reading table in use in the Cleveland Public Library has been of great aid in securing correct posture. With a slant surface of about sixteen inches from top to bottom, and a slant of about eight inches, the tendency to lean over the table is almost entirely counteracted. The child sits correctly in his chair, as a rule, and there is a consequent lessened strain in reading, for the top of the page is about the same distance from the eyes as is the bottom of the page. On the other hand, when the book lies on a flat-top table, the distance from the eyes to the top varies from the distance to the bottom of the page in direct ratio to the size of the book. Since the child assumes a correct posture, easily and naturally, he shows no disposition to spread his arms on the tables, nor could he do so with comfort, because there is only a narrow ledge to keep the book from falling. Moreover

it is noticed that the child turns the page correctly, at the top instead of the bottom of the page.

These tables were first designed for over-sized books, such as *St. Nicholas*. It was soon noticed that children preferred them when reading the smaller books as well. It is now planned to use them as fully as possible in the children's rooms. For little children a table two inches lower at the lower edge and with a ten-inch slant is used.

One marked advantage which these tables have over the old flat-top table is this: they may be so placed that the light falls in the right direction, because the children sit at one side of the table only. No child can sit in such a way that the light is in his eyes, if the tables are placed with judgment.

A frequent remark of visitors who know of this experiment is that the tables look better in the rooms than they expected. Knowing the advantages, one even prefers their appearance to the usual tables, which become easily scratched and scarred by the buttons on the boys' sleeves, and which cost considerably more. One librarian said she expected to see a choir stall effect, and another termed them "an admirable return to the mediæval!"

LIBRARY EQUIPMENT AND FURNITURE

Smaller details that may so easily be overlooked in the specifications, but which spell the difference between peaceful comfort and irritating lack of comfort in a library, are feelingly suggested in this article by Helen T. Kennedy, then an assistant librarian, Los Angeles Public Library. Miss Kennedy is now cataloger of the Museum Library, Santa Fe, New Mexico. She received her B.L.S. from the University of Illinois Library School in 1903, and was in the Jacksonville, Illinois, Public Library, librarian of the Kewanee, Illinois Public Library, Instructor at the University of Wisconsin Library School, and organizer for the Oregon Free Library Commission before going to Los Angeles in 1911. There she was Principal of the Training School, principal of the Branches department, and finally, second assistant librarian and also instructor in library buildings in the Library School.

Have we not all said after the new building was completed and in use, "Why didn't we order that bas-relief in time to have it set in the walls of the building?" or, "Why didn't it occur to us to plan for a cupboard here or a stairway there?" How keenly we have regretted the lack of this or that small convenience or time-saver and wished that we had kept a list of the little things that must not be forgotten another time.

The Los Angeles Public Library received in 1911 a gift from the Carnegie Corporation of \$210,000 with which six branch library buildings were built and equipped. In 1921 the people voted two and one-half million dollars for a main library and branch buildings, of which \$500,000 has been used for ten branch buildings of various sizes. In the process of building we have jotted down items to be considered for all buildings, both large and small.

The drinking fountain is a problem. Shall we have it or shall we not? How many little people ask for a drink on hot summer days and how often has the attendant at the desk gone to her own office to bring a glass of cold water for some feeble old man or tired woman! And yet, how the little folks do love to play with water and what a temptation it is to see how far the water will squirt! If the fountain is indoors water is sprinkled all over the floor; if outdoors, on the steps or porch or sidewalk, the machinery is very apt to get out of order and the useless fountain becomes an ugly blot on the landscape.

Not only in a climate where ice and snow make the steps dangerous but here in sunny California where cement steps will wear smooth and round, the edges of the steps approaching the entrance door must be roughened or furnished with a metal edge. There are many of our older patrons who wish for the aid of a metal rod or balustrade as they walk up or down the entrance steps to the building. One advantage that rented store rooms possess for which all invalids in wheel chairs are thankful is their accessibility to the sidewalk. Will library architecture ever adapt itself to a low, broad approach, so that all who need its ministry may find easy entrance?

Shall we have an electric bell connecting the charging desk with the office and with the basement, and to call the janitor from his work on the lawn? Do we wish to release the doors of the public toilet rooms by pushing a button at the desk? It is not enough to tell the architect that we want these items, but they must be written into the specifications to avoid the arduous task of installing them after the building is finished. In what convenient place can we tuck away the battery so that it can be frequently renewed without too much difficulty? After one experience with speaking tubes we shall never try them again. Where shall the telephone be placed,—in the librarian's office or at the charging desk? We prefer the latter with an extension to the librarian's office if the building is large, or on a shelf near the desk if the library is small. We find our patrons very reasonable about the use of the telephone; in fact, no one seems disturbed by the occasional patron's use of it.

One thing we always try to provide—a floor heater inside the charging desk, as this is the one spot in the building where one attendant must remain every morning before the large room is thoroly warmed, to make up the day's circulation, clip reserves, or send overdues, as well as to wait on the public.

One of our janitors asked permission to cut out a narrow opening under the lattice or grill work around the open reading porch, so that he might sweep the dust under the lattice and thus quickly clean the porch floor. One of the branch librarians suggested that there should always be a place on the main floor where a broom and dustpan could be kept ready for an emergency, and that a real janitor's closet with hot water and space for mops and brooms would be much appreciated by him, saving many trips up and down stairs, and would not be undesirable if well ventilated.

It is most difficult to plan for the electric light switch box at the charging desk. If the switchboard is placed in the wall the architect takes care of the matter and can usually find a convenient place that does not encroach upon the shelving and is not too far from the desk; but if we plan to locate the switch box in the charging desk and accept the electrician's word that 9 by 16 inches is sufficient space, invariably do we find after the desk has been made in the factory, shipped out and set up, that the electrician has changed his plans for lighting and must have 16 by 24 inches! Incidentally, this question of lighting is one of the most important in planning a library building. Sufficient light is difficult to secure, as many of our best architects believe they are being generous in giving to the library the number of foot candles allowed by the electricians' tables for the illumination of a church or an auditorium! Every corner of the reading room should have, if possible, eight foot candle intensity. Table lights, side-wall lights, and desk lights for the charging desk should be considered as well as the placing of the switch board. Lesser intensity is required for stacks and there are various methods of lighting these. Color of the walls is an important factor in lighting. Convenient outlets should be provided in staffrooms, at the desk and around the walls of rooms for electric attachments, such as vacuum cleaners.

The lawn sprinkling system involves a decision as to the location of the key, whether near the door steps or out on the sidewalk. So also must we decide just where to place the gas outlet in the kitchenette for connecting with the gas plate. There should always be a vent overhead. Location of stoves or radiators or registers in the reading rooms must be carefully arranged for. Heat radiators take up shelf space unless, as in the Denver branches, heat can be run under window seats and back of shelving. In our small libraries we are trying gas

registers in the floor and these have proved wholly successful thru the first winter season. Just as important is the location of the meters for gas, water and electricity, as these must always be available to the meter readers who may come when the small library is closed.

In one of our large branch libraries we cut the name of the library in the stone facings over the door, but as the majority of people passing by were wholly unconscious of the presence of letters there, we filled them in with black paint. We now have two buildings whose names are carved over the door in raised letters which cast a shadow and are easily read. Letters sunk in the sidewalk are probably never noticed by the hundreds of patrons walking over them but the bronze tablet inset in the wall of the building is readily noticed. Our small branches are furnished with black and gold signs on which we have painted the full name: Los Angeles Public Library—Figueroa Branch.

Signs for the inside of the building, or for the entrance doors, are important, setting forth the days and hours when the library is open. Such signs should be readable thru the glass of the entrance doors, or should be placed on the outside of the building so that the unfortunates who come when the library is closed, at least have the satisfaction of knowing when it will be open.

Our mail carriers have been very patient with us, delivering day after day to buildings which had as yet no number and no mail box. It is a nice question whether to cut a slot in a beautiful entrance door and trim it with a bronze edge, or whether to hang on it or near it an ordinary black or bronze box, the screws of which will scar the door and which is not large enough to hold the daily papers that otherwise blow to the four winds or are torn by the dogs before the librarian arrives. The question of artistic numbering and correct placing of these items is an important one, especially when entrance doors do not always lend themselves to an artistic arrangement of these daily necessities.

Picture moulding should be provided unless one prefers the long metal hooks sunk in the wall. There must be rigid inspection of the plaster work to see that walls are rodged in both directions sufficiently to form a straight, even surface to set the wall stacks against.

Where shall we hang the clock so that everyone may see it easily and where it will be inconspicuous or will harmonize with the treatment of the walls? For there must be a clock.

Shall we have a flag for the outside of the building, to swing to the breeze on all holidays, when the library is likely to be closed and no one at hand to take it down again at the proper hour; and shall there be a flag pole, which in itself is a temptation to the small boys of the neighborhood after they have watched "the human fly" cleaning the bright brass ball at the top?

Shall we buy a few good vases and jardinières and make some taborettes and fern boxes? Never must we forget to save the scraps of cork carpet and have the janitor cut them into small round buffers to put under the vases and jardinières, for if we forget this even once, the beautifully polished surface of wood on which the vase has been standing is marred.

For the comfort and convenience of the staff our newer branches are all provided with rest rooms and kitchenette and we have tried to put in roomy cupboards and thoroly good coolers. Sometimes we discover to our sorrow that the cooler has not been furnished with the air inlets and outlets that we had supposed were correctly specified to the builder.

Is the kitchenette complete without dishes? Can we get anything ready for lunch without a teakettle or saucepan? Pretty table runners, couch covers, cushions for the chairs and drapes for the windows,—all can be done for little outlay and all contribute to the rest and relaxation of the girl who has worked under heavy pressure at the desk perhaps longer than her scheduled time, because one is ill or something has happened to change the regular schedule.

For the large windows in the public reading rooms we have found least expensive and very satisfactory a material known as "Casement cloth" which comes in a neutral tone reminding one of pongee. Windows should be so arranged if possible that the desk attendants do not have to face the light, but if this is necessary one must weigh the comparative values of both shades and drapes. The height of the window and the intensity of light must be taken into consideration.

Door checks must be provided for certain doors,—for example the toilet room doors should close automatically and immediately with a strong spring check. Outside doors should be fitted with foot release checks for use in warm weather. Window and door screens need thotful planning, as wide entrance doors are a difficult problem. Protecting brass rods or

wooden bars are necessary on screen doors and on window screens wherever there are window seats or benches.

Floor covering is another important problem, and no less a problem is the care of the cork carpet or linoleum at the hands of the janitor, that it may remain in good condition and become neither too soft nor too hard. Wooden mop boards are invariably ruined by the cleaning of the floors. We are seeking to avoid this by using a battleship linoleum facing for all exposed wall base and bases of all stacks, wall shelving and furniture. In a brick or concrete building magnesite, cement or marble are preferable according to the location.

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DICKMAN BOOKCHARGING SYSTEM AND GAYLORD ELECTRIC AUTOMATIC CHARGING MACHINE

A distinctive addition to the mechanical equipment of libraries in very recent years has been machines for charging books. The first machine to be found at all suitable was the Dickman described below by George I. Lehman of the Library Efficiency Corporation, which manufactures it. The other being tried out or installed by libraries is the Gaylord of which an explanation by Sara Patterson, secretary-treasurer of the Gaylord Company, is included.

The mechanization of charging systems has called forth satirical comment from our English library friends and defence of the old methods from some American librarians, but is receiving serious consideration as a means of securing greater speed and accuracy.

THE DICKMAN BOOKCHARGING SYSTEM

The value of an infallible machine for charging books has long been recognized. The late Mr. Edwin White Gaillard of the New York Public Library recognized the value of a mechanical device for public and university libraries fully thirty-five years ago. He attempted to solve this problem at that time, but unfortunately, after constructing such a machine at a cost of approximately \$3,500, it was found to be entirely unsuitable.

Nothing further was done for a period of years, until Dr. George F. Bowerman, librarian of the Public Library of Washington, D. C., requested the United States Bureau of Efficiency to help solve the problem. The United States Bureau of Efficiency spent years of effort in cooperating with every known manufacturer of small machines in the world, trying to have such a machine constructed as would meet the rigid and unique requirements of libraries. Two factors were stressed as being

absolutely essential: 1. Simplicity—both in construction and operation; and 2. Low cost—to be within the reach of the very small as well as the very large libraries. Many models were submitted, ranging in price from \$450 to \$3,500 each, yet the Dickman Bookcharging Machine, at a cost of \$50, was the only machine submitted that fully met the requirements of the Efficiency Bureau, and was accepted and approved by them.

The Dickman Bookcharging System was then installed for a trial at the Public Library of Washington, D. C. Shortly after the machines were installed, Dr. Bowerman came to the conclusion that not only was a mechanical charger of books in public libraries a possibility, but it was an actually accomplished fact. Such representative libraries as the New York Public Library, St. Louis Public Library, Brooklyn Public Library, Free Public Library of East Orange, N. J., Free Library of Philadelphia, were not far behind. Since then installations have been made in a great many public and university libraries thruout the world. On September 25, 1927, Dr. Bowerman wrote, "Mistakes in copying numbers are eliminated, dates are legible and much time is saved." Another librarian wrote, "The strongest point in favor of this system is that there is absolutely no possibility of a mistake in charging a book, and it will entirely eliminate the claim that the borrower never had the book and will cut down our losses tremendously." Miss Jennie M. Flexner, in her *Circulation Work in Public Libraries* stated:

For many years librarians have been working toward a machine which could be used to perform many of the routine clerical duties connected with charging and discharging books. Quite recently such a machine in its later experimental stages has been shown, and it seems to meet requirements, yet to be simple and easily worked. The obvious advantages are the result of the speed of charging, and its mechanical accuracy. . . Certainly it is a hopeful sign of progress toward a day when the routine clerical work of charging books will be accomplished by clerks using machines, and thus qualified assistants may be released for the personal service which is of so much greater importance.

The Dickman Bookcharging System is so flexible that it is designed in every instance for an individual installation in every library using it. Regardless of the details of the method in use in any library, the Dickman System can be adjusted to its individual requirements. It makes no difference what the size of the cards may be or what basis of use in charging, whether

it be founded on "date due" or "date of issue," this system is made to fit individual needs and wants, and to utilize to the fullest extent existing equipment. An installation of the System will not interfere with the routine operation of the library work.

Following are some of the advantages derived from the use of the Dickman Bookcharging System:

1. Absolute Accuracy
Mistakes are *impossible*.
Saves all delinquencies which are directly traced to transposed figures.
2. Perfect legibility
Eliminates all questions as to due dates.
Avoids "snags" in slipping.
Speeds up general routine in circulation department.
3. Speed
Miss Winifred Riggs, chief of the Branch Department, Toledo Public Library, in a paper submitted on June 23, 1930, at the meeting of the American Library Association at Los Angeles said:
"Some tests were recently made for a record of speed. The kind of test made was agreed upon previously with Mr. Ulveling of Detroit, who planned to make a similar test, using the Detroit method of charging. Twenty-five books were used, charged in various groups on six cards. Two books were rentals. Four books were seven day books. One was charged for four weeks. Time counted from the moment the first borrower put his books on the desk to the moment the last borrower took his away. Two assistants, working independently, made this test with the same books and cards, one in three minutes twenty seconds and the other in three minutes thirty seconds, or an average of eight seconds per book for the faster worker. This may not seem exceptionally quick, but thruout a busy day the gain of, roughly, five to six minutes per hundred books means more than it sounds. But beside the quicker service, reducing the number of borrowers standing in line is a very important advantage of the machine."
4. Simplicity of operation
Does not require any special training to operate. Releases trained librarians for more constructive work.
In an article written at the request of the editor of the *Massachusetts Library Club Bulletin* and printed in the October, 1930 issue, Miss Ethel Trudeau of the Free Public Library of East Orange, N. J., writes as follows:
"The actual operation of charging a book is extremely simple. When the borrower presents his books to be marked, the assistant immediately separates them accord-

ing to date they are due, removes the book card, inserts in pocket of the book the proper date card, turns the date indicator to the correct date, places the borrower's disc in the machine and with a single motion of the hand on the charger arm, stamps the borrower's number and date due. It takes a trained assistant approximately a minute and a quarter to charge ten books. The value of the machine method is the speed and accuracy with which a book can be stamped. It is evident that the date card is correct and that the number on the book card has not been copied incorrectly or the digits transposed."

5. Protection

An important feature of the System is that it furnishes the library with a receipt for each volume issued, at the same time protecting the borrower against possible erroneous charges. A greater amount of cooperation from the borrowing public is possible as the borrower quickly appreciates the advantages of the improved service at the charging desk. The elimination of questions and arguments as to due dates is most certainly appreciated, as well as the protection afforded by the unfailing accuracy and legibility of the machine.

6. Saving from eye strain and fatigue

Miss Jessie Welles, assistant librarian of the Toledo Public Library, wrote in March, 1930:

"One of the advantages we have found from the use of the machine was entirely unexpected and at the same time one of the most important. After placing the book card in the machine has become automatic, and this is astonishingly soon, there is no need for close observation. There is no necessity for noting or copying borrower's numbers, no watching the borrower's card for uncanceled dates or for the place to put the new charge. The date on the date card is the item to be watched when putting the card in the pocket. After the first week or two, this release from eye strain was given by the staff as the leading factor contributing to the reduction of fatigue. Since we began using the machine for charging, the circulation has been the largest in the library's history and yet it has been carried by practically the same staff with less confusion at the desk and with less wear and tear on the staff."

Again quoting from Miss Trudeau's article in the *Massachusetts Library Club Bulletin*:

"The machine after two years' trial is satisfactory. Assistants have been most enthusiastic about it and it would be hard to find one member out of the thirty on the staff who would be willing to go back to the old method."

7. Saving of supplies

By using every available space on all record cards, a considerable saving in supplies and time is possible.

It would be impossible in the limited space allotted for this article to go into a detailed description of the Dickman Book-charging System. The Library Efficiency Corporation, 148 West 23d Street, New York City, has published several pamphlets fully descriptive of both "The Dickman Bookcharging System" and the new method, "The Toledo Method of the Dickman Book-charging System," which they will gladly furnish on request.

Many librarians are under the mistaken impression that the cost of the machine is prohibitive, whereas in actual use it has been proven that the System will pay for itself in an astonishingly short time. The Library Efficiency Corporation is prepared to offer full cooperation in proving the economy of the Dickman Bookcharging System. Any library desiring to do so, can arrange to have the necessary machines and supplies sent to them for a Free Trial Installation extending over a period of from three to six months, without obligating themselves in any manner whatsoever.

The typewriter, adding machine and comptometers increase business office efficiency one thousand fold in handling fiscal records. The Dickman Book Charger does likewise for the library. Actually, it is not a question of whether a library can afford to install the Dickman Bookcharging System, but of whether the library can afford to get along without it.

GAYLORD ELECTRIC AUTOMATIC CHARGING MACHINE

The Gaylord Electric Automatic Charging Machine is so designed and built that books can be charged at much greater speed than ever before and with absolute accuracy. It is neat and compact in appearance—9 inches x 13 inches x 8 inches—and can be placed on a desk or table wherever convenient.

In the top of the machine are two slots in which the borrower's card and the book card are inserted when a book is to be charged. A small quiet electric motor is mounted within the machine, entirely out of sight, and functions automatically to operate the machine and charge a book.

Within the machine there is also a date holder. This consists of a piece of metal on which are placed four plates on which are embossed various dates, so that books may be charged on the current date or on the date books are due, whether they are seven, ten, fourteen, or twenty-eight day books or any selection of four dates. Each morning the date holder is removed

from the machine and plates showing the correct dates for that particular day are placed on the holder. The date to be printed on the book card is then controlled by a small dial on the left side of the machine. By turning this dial to one of four positions, the correct date will be printed on the cards.

Near the top of the borrower's card at the right, are two slots. A metal embossed number plate slides into these two slots and is held firmly, so there is no danger of its being lost out. Borrowers' cards 3 inches x 5 inches or identification cards of any size may be used, provided one dimension is 3 inches. When a borrower's card is used and entirely filled, the number plate may be easily removed and inserted in a new card.

The metal slugs are numbered on our special machine which operates like an automatic numbering machine. If preferred, the library can purchase a machine for making its own date slugs required for patrons who lose their borrowers' cards.

It is desirable to use plain book cards, but those in use in a library may be used until the supply is exhausted, provided they are 7.5 x 12.5 cm. in size.

The machine prints the borrower's number and dates by means of a ribbon, twenty feet in length, wound on two spools. When it is completely wound on one spool, it automatically reverses and winds on the other.

To charge a book with this machine, the borrower's card is inserted in the right hand slot on the top of the case as far as it will go. The book card is inserted in the other slot, when it automatically releases a cam within the machine which causes it to operate, thereby printing the date and the borrower's number on the book card.

At the same time, a corner on the book card is cut off. This causes the card to be placed a little further down in the slot the next time it is inserted. Thus the machine always prints in a space just above the previous printing so that no space is wasted. After the lower half of the card is filled, the upper and lower half of the reverse side are filled. About forty-two charges may be made on a borrower's card and book card.

It is more practical to use date cards rather than date slips with this machine. If a record of the date and borrower's number is desired on the date card, this card may be inserted in the machine when the book is charged. The date and borrower's number will then be automatically printed on it. If this

record is not desired, a number of date cards may be stamped at one time for use later.

The regular borrowers' card, so widely used, insures against a patron claiming that a book has been returned when it is still out. By the use of these time tested borrowers' cards the desk attendant can readily determine how many and what books a borrower has out at any time, also the dates when they were charged and when they are or were due to be returned.

There can be no question as to the fines to be imposed because the date and borrower's number are plainly printed on the book card. Thus the collection of fines is insured, and there is no possibility of fines being allowed to accumulate. This card settles all questions as to whether or not a book was taken by a certain borrower.

If for any reason a book card is removed from the charging tray, there is no guessing as to what date guide it should be filed under, as both the date and borrower's number appear on it.

Borrowers take better care of cards on which a number plate is inserted, and they are also more likely to have their cards with them when borrowing books.

Each operation performed by the machine is done better and more accurately than by hand. Printing, done by the machine, is always legible—hand writing is not.

There is less fatigue or nervous strain on the desk attendants during "rush" periods, and it is unnecessary for them to be relieved as frequently when charging is done the automatic way. The desk attendants can answer questions while making a charge, and still accuracy is assured.

There is great saving in time, not only in the actual charging of books but also in the time spent in determining fines due, number of books charged out to a certain borrower, where to file date cards in the charging trays after they have been removed for any reason, etc.

The use of this Charging Machine does not mean that a new system is installed; it involves no change in present methods. The same procedure of charging books is followed—the only difference is that this charging is done mechanically instead of by hand. And who does not welcome the release offered by a mechanical means of performing any routine task? From the many requests we have for the installation of this charging machine, we know that such release is welcomed by librarians.

ON BOOKS AND THE HOUSING OF THEM

This article by William Ewart Gladstone, British statesman and author, presents a distinctive viewpoint and furnishes an entertaining culmination to the contributions which librarians, architects and scientists have made to the subject of the housing of books in libraries.

A contribution to the same subject made by Dr. Charles William Eliot in 1902 and entitled "Division of a library into books in use and books not in use," was included in volume VIII of this series, *The Library Within the Walls*, selected and annotated by K. T. Moody.

In the old age of his intellect (which at this point seemed to taste a little of decrepitude), Strauss declared* that the doctrine of immortality has recently lost the assistance of a passable argument, inasmuch as it has been discovered that the stars are inhabited; for where, he asks, could room now be found for such a multitude of souls? Again, in view of the current estimates of prospective population for this earth, some people have begun to entertain alarm for the probable condition of England (if not Great Britain) when she gets (say) the seventy millions that are allotted to her against six or eight hundred millions for the United States. We have heard in some systems of the pressure of population upon food; but the idea of any pressure from any quarter upon space is hardly yet familiar. Still, I suppose that many a reader must have been struck with the naive simplicity of the hyperbole of St. John, perhaps a solitary unit of its kind in the New Testament: "the which if they should be written every one, I suppose that even the world itself could not contain the books that should be written."

A book, even Audubon (I believe the biggest known), is smaller than a man; but, in relation to space, I entertain more proximate apprehension of pressure upon available space from the book population than from the numbers of mankind. We

* In *Der alte und der neue Glaube*.

ought to recollect, with more of a realised conception than we commonly attain to, that a book, ay, that every book, consists, like man from whom it draws its lineage, of a body and a soul. They are not always proportionate to each other. Nay, even the different members of the book-body do not sing, but clash, when bindings of a profuse costliness are imposed, as too often happens in the case of Bibles and books of devotion, upon letterpress which is respectable journeyman's work and nothing more. The men of the Renaissance had a truer sense of adaptation; the age of jewelled bindings was also the age of illumination and of the beautiful *miniatura*, which at an earlier stage meant side- or margin-art,† and then, on account of the small portraitures included in it, gradually slid into the modern sense of miniature. There is a caution which we ought to carry with us more and more as we get in view of the coming period of open book-trade, and of demand practically boundless. Noble works ought not to be printed in mean and worthless forms, and cheapness ought to be limited by an instinctive sense and law of fitness. The binding of a book is the dress with which it walks out into the world. The paper, type, and ink are the body, in which its soul is domiciled. And these three, soul, body, and habiliment, are a triad which ought to be adjusted to one another by the laws of harmony and good sense.

Already the increase of books is passing into geometrical progression. And this is not a little remarkable when we bear in mind that in Great Britain, of which I speak, while there is a vast supply of cheap works, what are termed "new publications" issue from the press, for the most part, at prices fabulously high, so that the class of real purchasers has been extirpated, leaving behind as buyers only a few individuals who might almost be counted on the fingers, while the effective circulation depends upon middle-men thru the engine of circulating libraries. These are not so much owners as distributors of books, and they mitigate the difficulty of dearness by subdividing the cost, and then selling such copies as are still in decent condition at a large reduction. It is this state of things, due, in my opinion, principally to the present form of the law of copyright, which perhaps may have helped to make way for the satirical (and sometimes untrue) remark that in times of distress or pressure men make their first economies on their charities, and their second on their books.

† First of all it seems to have referred to the red capital letters placed at the head of chapters or other divisions of works.

The annual arrivals at the Bodleian Library are, I believe, some twenty thousand; at the British Museum, forty thousand, sheets of all kinds included. Supposing three-fourths of these to be volumes, of one size or another, and to require on the average an inch of shelf space, the result will be, that in every two years nearly a mile of new shelving will be required to meet the wants of a single library. But, whatever may be the present rate of growth, it is small in comparison with what it is likely to become. The key of the question lies in the hands of the United Kingdom and the United States jointly. In this matter there rests upon these two Powers no small responsibility. They, with their vast range of inhabited territory, and their unity of tongue, are masters of the world, which will have to do as they do. When the Britains and America are fused into one book-market; when it is recognised that letters, which as to their material and their aim are a high-soaring profession, as to their mere remuneration are a trade; when artificial fetters are relaxed, and printers, publishers, and authors obtain the reward which well-regulated commerce would afford them, then let floors beware lest they crack, and walls lest they bulge and burst, from the weight of books they will have to carry and to confine.

It is plain, for one thing, that under the new state of things specialism, in the future, must more and more abound. But specialism means subdivision of labor; and, with subdivision, labor ought to be more completely, more exactly, performed. Let us bow our heads to the inevitable; the day of encyclopedic learning has gone by. It may perhaps be said that that sun set with Leibnitz. But as little learning is only dangerous when it forgets that it is little, so specialism is only dangerous when it forgets that it is special. When it encroaches on its betters, when it claims exceptional certainty or honor, it is impertinent, and should be rebuked; but it has its own honor in its own province, and is, in any case, to be preferred to pretensions and flaunting sciolism.

A vast, even a bewildering prospect is before us; for evil or for good; but for good, unless it be our own fault, far more than for evil. Books require no eulogy from me; none could be permitted me, when they already draw their testimonials from Cicero and Macaulay. But books are the voices of the dead. They are a main instrument of communion with the vast human procession of the other world. They are the allies of

the thot of man. They are in a certain sense at enmity with the world. Their work is, at least, in the two higher compartments of our threefold life. In a room well filled with them, no one has felt or can feel solitary. Second to none, as friends to the individual, they are first and foremost among the *compages*, the bonds and rivets of the race, onwards from that time when they were first written on the tablets of Babylonia and Assyria, the rocks of Asia Minor, and the monuments of Egypt, down to the diamond editions of Mr. Pickering and Mr. Frowde.*

It is in truth difficult to assign dimensions for the libraries of the future. And it is also a little touching to look back upon those of the past. As the history of bodies cannot, in the long run, be separated from the history of souls, I make no apology for saying a few words on the libraries which once were, but which have passed away.

The time may be approaching when we shall be able to estimate the quantity of book knowledge stored in the repositories of those empires which we call prehistoric. For the present, no clear estimate even of the great Alexandrian Libraries has been brought within the circle of popular knowledge; but it seems pretty clear that the books they contained were reckoned, at least in the aggregate, by hundreds of thousands. The form of the book, however, has gone thru many variations; and we moderns have a great advantage in the shape which the exterior has now taken. It speaks to us symbolically by the title on its back, as the roll of parchment could hardly do. It is established that in Roman times the bad institution of slavery ministered to a system under which books were multiplied by simultaneous copying in a room where a single person read aloud in the hearing of many the volume to be reproduced, and that so produced they were relatively cheap. Had they not been so, they would hardly have been, as Horace represents them, among the habitual spoils of the grocer. It is sad, and is suggestive of many inquiries, that this abundance was followed, at least in the West, by a famine of more than a thousand years. And it is hard, even after all allowances, to conceive that of all the many manuscripts of Homer which Italy must have possessed we do not know that a single parchment or papyrus was ever

* The Prayer Book, recently issued by Mr. Frowde at the Clarendon Press, weighs, bound in morocco, less than an ounce and a quarter. I see it stated that unbound it weighs three-quarters of an ounce. Pickering's Catullus, Tibullus, and Propertius, in leather binding, weighs an ounce and a quarter. His Dante weighs less than a number of the *Times*.

read by a single individual, even in a convent, or even by a giant such as Dante, or as Thomas Aquinas, the first of them unquestionably master of all the knowledge that was within the compass of his age. There were, however, libraries even in the West, formed by Charlemagne and by others after him. We are told that Alcuin, in writing to the great monarch, spoke with longing of the relative wealth of England in these precious *estates*. Mr. Edwards, whom I have already quoted, mentions Charles the Fifth of France, in 1365, as a collector of manuscripts. But some ten years back the Director of the Bibliothèque Nationale informed me that the French King John collected twelve hundred manuscripts, at that time an enormous library; out of which several scores were among the treasures in his care. Mary of Medicis appears to have amassed in the sixteenth century, probably with far less effort, 5,800 volumes. Oxford had before that time received noble gifts for her University Library. And we have to recollect with shame and indignation that that institution was plundered and destroyed by the Commissioners of the boy king Edward the Sixth, acting in the name of the Reformation of Religion. Thus it happened that opportunity was left to a private individual, the munificent Sir Thomas Bodley, to attach an individual name to one of the famous libraries of the world. It is interesting to learn that municipal bodies have a share in the honor due to monasteries and sovereigns in the collection of books; for the Common Council of Aix purchased books for a public library in 1419.

Louis the Fourteenth, of evil memory, has at least this one good deed to his credit, that he raised the Royal Library at Paris, founded two centuries before, to 70,000 volumes. In 1791 it had 150,000 volumes. It profited largely by the Revolution. The British Museum had only reached 115,000 when Panizzi became keeper in 1837. Nineteen years afterwards he left it with 560,000, a number which must now have more than doubled. By his noble design for occupying the central quadrangle, a desert of gravel until his time, he provided additional room for 1,200,000 volumes. All this apparently enormous space for development is being eaten up with fearful rapidity; and such is the greed of the splendid library that it opens its jaws like Hades, and threatens shortly to expel the antiquities from the building, and appropriate the spaces they adorn.

But the proper office of hasty retrospect in a paper like this is only to enlarge by degrees, like the pupil of an eye, the

reader's contemplation and estimate of the coming time, and to prepare him for some practical suggestions of a very humble kind. So I take up again the thread of my brief discourse. National libraries draw upon a purse which is bottomless. But all public libraries are not national. And the case even of private libraries is becoming, nay, has become, very serious, for all who are possessed by the inexorable spirit of collection, but whose ardor is perplexed and qualified, or even baffled, by considerations springing from the balance-sheet.

The purchase of a book is commonly supposed to end, even for the most scrupulous customer, with the payment of the bookseller's bill. But this is a mere popular superstition. Such payment is not the last, but the first term in a series of goodly length. If we wish to give to the book a lease of life equal to that of the pages, the first condition is that it should be bound. So at least one would have said half a century ago. But, while books are in most instances cheaper, binding, from causes which I do not understand, is dearer, at least in England, than it was in my early years. So that few can afford it. We have, however, the tolerable and very useful expedient of cloth binding (now in some danger, I fear, of losing its modesty thru flaring ornamentation) to console us. Well then, bound or not, the book must of necessity be put into a bookcase. And the bookcase must be housed. And the house must be kept. And the library must be dusted, must be arranged, should be cataloged. What a vista of toil, yet not unhappy toil! Unless indeed things are to be, as they now are in at least one princely mansion of this country, where books, in thousands upon thousands, are jumbled together with no more arrangement than a sack of coals; where not even the sisterhood of consecutive volumes has been respected; where undoubtedly an intending reader may at the mercy of Fortune take something from the shelves that is a book, but where no particular book can, except by the purest accident, be found.

Such being the outlook, what are we to do with our books? Shall we be buried under them like Tarpeia under the Sabine shields? Shall we renounce them (many will, or will do worse, will keep to the most worthless part of them) in our resentment against their more and more exacting demands? Shall we sell and scatter them? as it is painful to see how often the books of eminent men are ruthlessly, or at least unhappily, dispersed

on their decease. Without answering in detail, I shall assume that the book-buyer is a book-lover, that his love is a tenacious not a transitory love, and that for him the question is how best to keep his books.

I pass over those conditions which are the most obvious, that the building should be sound and dry, the apartment airy, and with abundant light. And I dispose with a passing anathema of all such as would endeavor to solve their problem, or at any rate compromise their difficulties, by setting one row of books in front of another. I also freely admit that what we have before us is not a choice between difficulty and no difficulty, but a choice among difficulties.

The objects further to be contemplated in the bestowal of our books, so far as I recollect, are three: economy, good arrangement, and accessibility with the smallest possible expenditure of time.

In a private library, where the service of books is commonly to be performed by the person desiring to use them, they ought to be assorted and distributed according to subject. The case may be altogether different, where they have to be sent for and brought by an attendant. It is an immense advantage to bring the eye in aid of the mind; to see within a limited compass all the works that are accessible, in a given library, on a given subject; and to have the power of dealing with them collectively at a given spot, instead of hunting them up thru an entire accumulation. It must be admitted, however, that distribution by subjects ought in some degree to be controlled by sizes. If everything on a given subject, from folio down to 32mo, is to be brought locally together, there will be an immense waste of space in the attempt to lodge objects of such different sizes in one and the same bookcase. And this waste of space will cripple us in the most serious manner, as will be seen with regard to the conditions of economy and of accessibility. The three conditions are in truth all connected together, but especially the two last named.

Even in a paper such as this the question of classification cannot altogether be overlooked; but it is one more easy to open than to close—one upon which I am not bold enough to hope for uniformity of opinion and of practice. I set aside on the one hand the case of great public libraries, which I leave to the experts of those establishments. And, at the other end

of the scale, in small private libraries the matter becomes easy or even insignificant. In libraries of the medium scale, not too vast for some amount of personal survey, some would multiply subdivision, and some restrain it. An acute friend asks me under what and how many general headings subjects should be classified in a library intended for practical use and reading, and boldly answers by suggesting five classes only: (1) science, (2) speculation, (3) art, (4) history, and (5) miscellaneous and periodical literature. But this seemingly simple division at once raises questions both of practical and of theoretic difficulty. As to the first, periodical literature is fast attaining to such magnitude, that it may require a classification of its own, and that the enumeration, which indexes supply, useful as it is, will not suffice. And I fear it is the destiny of periodicals as such to carry down with them a large proportion of what, in the phraseology of railways, would be called dead weight, as compared with live weight. The limits of speculation would be most difficult to draw. The diversities included under science would be so vast as at once to make sub-classification a necessity. The *ologies* are by no means well suited to rub shoulders together; and sciences must include arts, which are but country cousins to them, or a new compartment must be established for their accommodation. Once more, how to cope with the everlasting difficulty of "Works"? In what category to place Dante, Petrarch, Swedenborg, Burke, Coleridge, Carlyle, or a hundred more? Where, again, is Poetry to stand? I apprehend that it must take its place, the first place without doubt, in Art; for, while it is separated from Painting and her other "sphere-born harmonious sisters" by their greater dependence on material form, they are all more inwardly and profoundly united in their first and all-enfolding principle, which is to organise the beautiful for presentation to the perceptions of man.

But underneath all particular criticism of this or that method of classification will be found to lie a subtler question—whether the arrangement of a library ought not in some degree to correspond with and represent the mind of the man who forms it. For my own part, I plead guilty, within certain limits, of favoritism in classification. I am sensible that sympathy and its reverse have something to do with determining in what company a book shall stand. And further, does there not enter into the matter a principle of humanity to the authors themselves? Ought we not to place them, so far as may be, in the

neighborhood which they would like? Their living manhoods are printed in their works. Every reality, every tendency, endures. *Eadem sequitur tellure sepultos.*

I fear that arrangement, to be good, must be troublesome. Subjects are traversed by promiscuous assemblages of "works"; both by sizes; and all by languages. On the whole I conclude as follows. The mechanical perfection of a library requires an alphabetical catalog of the whole. But under the shadow of this catalog let there be as many living integers as possible, for every well-chosen subdivision is a living integer and makes the library more and more an organism. Among others I plead for individual men as centers of subdivision: not only for Homer, Dante, Shakespeare, but for Johnson, Scott, and Burns, and whatever represents a large and manifold humanity.

The question of economy, for those who from necessity or choice consider it at all, is a very serious one. It has been a fashion to make bookcases highly ornamental. Now books want for and in themselves no ornament at all. They are themselves the ornament. Just as shops need no ornament, and no one will think of or care for any structural ornament, if the goods are tastefully disposed in the shop-window. The man who looks for society in his books will readily perceive that, in proportion as the face of his bookcase is occupied by ornament, he loses that society; and conversely, the more that face approximates to a sheet of book-backs, the more of that society he will enjoy. And so it is that three great advantages come hand in hand, and, as will be seen, reach their maximum together: the sociability of books, minimum of cost in providing for them, and ease of access to them.

In order to attain these advantages, two conditions are fundamental. First, the shelves must, as a rule, be fixed; secondly, the cases, or a large part of them, should have their side against the wall, and thus, projecting into the room for a convenient distance, they should be of twice the depth needed for a single line of books, and should hold two lines, one facing each way. Twelve inches is a fair and liberal depth for two rows of octavos. The books are thus thrown into stalls, but stalls after the manner of a stable, or of an old-fashioned coffee-room; not after the manner of a bookstall, which, as times go, is no stall at all, but simply a flat space made by putting some scraps of boarding together, and covering them with books.

This method of dividing the longitudinal space by projections at right angles to it, if not very frequently used, has long been known. A great example of it is to be found in the noble library of Trinity College, Cambridge, and is the work of Sir Christopher Wren. He has kept these cases down to very moderate height; for he doubtless took into account that great heights require long ladders, and that the fetching and use of these greatly add to the time consumed in getting or in replacing a book. On the other hand, the upper spaces of the walls are sacrificed, whereas in Dublin, All Souls, and many other libraries the bookcases ascend very high, and magnificent apartments walled with books may in this way be constructed. Access may be had to the upper portions by galleries; but we cannot have stairs all round the room, and even with one gallery of books a room should not be more than from sixteen to eighteen feet high if we are to act on the principle of bringing the largest possible number of volumes into the smallest possible space. I am afraid it must be admitted that we cannot have a noble and imposing spectacle, in a vast apartment, without sacrificing economy and accessibility; and *vice versa*.

The projections should each have attached to them what I rudely term an end-piece (for want of a better name), that is a shallow and extremely light adhering bookcase (light by reason of the shortness of the shelves), which both increases the accommodation, and makes one short side as well as the two long ones of the paralleliped to present simply a face of books with the lines of shelf, like threads, running between the rows.

The wall-spaces between the projections ought also to be turned to account for shallow bookcases so far as they are not occupied by windows. If the width of the interval be two feet six, about sixteen inches of this may be given to shallow cases placed against the wall.

Economy of space is in my view best attained by fixed shelves. This dictum I will now endeavor to make good. If the shelves are movable, each shelf imposes a dead weight on the structure of the bookcase, without doing anything to support it. Hence it must be built with wood of considerable mass, and the more considerable the mass of wood the greater are both the space occupied and the ornament needed. When the shelf is fixed, it contributes as a fastening to hold the parts of the bookcase together; and a very long experience enables me to say that shelves of from half to three-quarters of an inch worked fast

into uprights of from three-quarters to a full inch will amply suffice for all sizes of books except large and heavy folios, which would probably require a small, and only a small, addition of thickness.

I have recommended that as a rule the shelves be fixed, and have given reasons for the adoption of such a rule. I do not know whether it will receive the sanction of authorities. And I make two admissions. First it requires that each person owning and arranging a library should have a pretty accurate general knowledge of the sizes of his books. Secondly it may be expedient to introduce here and there, by way of exception, a single movable shelf; and this, I believe, will be found to afford a margin sufficient to meet occasional imperfections in the computation of sizes. Subject to these remarks, I have considerable confidence in the recommendation I have made.

I will now exhibit to my reader the practical effect of such arrangement, in bringing great numbers of books within easy reach. Let each projection be three feet long, twelve inches deep (ample for two faces of octavos), and nine feet high, so that the upper shelf can be reached by the aid of a wooden stool of two steps not more than twenty inches high, and portable without the least effort in a single hand. I will suppose the wall space available to be eight feet, and the projections, three in number, with end pieces need only jut out three feet five, while narrow strips of bookcase will run up the wall between the projections. Under these conditions, the bookcases thus described will carry above 2,000 octavo volumes.

And a library forty feet long and twenty feet broad, amply lighted, having some portion of the center fitted with very low bookcases suited to serve for some of the uses of tables, will receive on the floor from 18,000 to 20,000 volumes of all sizes, without losing the appearance of a room or assuming that of a warehouse, and while leaving portions of space available near the windows for purposes of study. If a gallery be added, there will be accommodation for a further number of five thousand; and the room need be no more than sixteen feet high. But a gallery is not suitable for works above the octavo size, on account of inconvenience in carriage to and fro.

It has been admitted that in order to secure the vital purpose of compression with fixed shelving, the rule of arrangement according to subjects must be traversed partially by division into sizes. This division, however, need not, as to the bulk of the

library, be more than threefold. The main part would be for octavos. This is becoming more and more the classical or normal size; so that nowadays the octavo edition is professionally called the library edition. Then there should be deeper cases for quarto and folio, and shallower for books below octavo, each appropriately divided into shelves.

If the economy of time by compression is great, so is the economy of cost. I think it reasonable to take the charge of provision for books in a gentleman's house, and in the ordinary manner, at a shilling a volume. This may vary either way, but it moderately represents, I think, my own experience, in London residences, of the charge of fitting up with bookcases, which, if of any considerable size, are often unsuitable for removal. The cost of the method which I have adopted later in life, and have here endeavored to explain, need not exceed one penny per volume. Each bookcase when filled represents, unless in exceptional cases, nearly a solid mass. The intervals are so small that, as a rule, they admit a very small portion of dust. If they are at a tolerable distance from the fireplace, if carpeting be avoided except as to small movable carpets easily removed for beating, and if sweeping be discreetly conducted, dust may, at any rate in the country, be made to approach to a *quantité négligeable*.

It is a great matter, in addition to other advantages, to avoid the endless trouble and the miscarriages of movable shelves; the looseness, and the tightness, the weary arms, the aching fingers, and the broken finger-nails. But it will be fairly asked what is to be done, when the shelves are fixed, with volumes too large to go into them? I admit that the dilemma, when it occurs, is formidable. I admit also that no book ought to be squeezed or even coaxed into its place: they should move easily both in and out. And I repeat here that the plan I have recommended requires a pretty exact knowledge by measurement of the sizes of books and the proportions in which the several sizes will demand accommodation. The shelf-spacing must be reckoned beforehand, with a good deal of care and no little time. But I can say from experience that by moderate care and use this knowledge can be attained, and that the resulting difficulties, when measured against the aggregate of convenience, are really insignificant. It will be noticed that my remarks are on minute details, and that they savor more of serious handiwork in the placing of books than of lordly survey and direction. But what man who really loves his books delegates to any other human

being, as long as there is breath in his body, the office of inducting them into their homes?

And now as to results. It is something to say that in this way 10,000 volumes can be placed within a room of quite ordinary size, all visible, all within easy reach, and without destroying the character of the apartment as a room. But, on the strength of a case with which I am acquainted, I will even be a little more particular. I take as before a room forty feet in length and twenty in breadth, thoroly lighted by four windows on each side; as high as you please, but with only about nine feet of height taken for the bookcases; inasmuch as all heavy ladders, all *adminicula* requiring more than one hand to carry with care, are forsworn. And there is no gallery. In the manner I have described, there may be placed on the floor of such a room, without converting it from a room into a warehouse, bookcases capable of receiving, in round numbers, 20,000 volumes.

The state of the case, however, considered as a whole, and especially with reference to libraries exceeding say 20,000 or 30,000 volumes, and gathering rapid accretions, has been found to require in extreme cases, such as those of the British Museum and the Bodleian (on its limited site), a change more revolutionary in its departure from, almost reversal of, the ancient methods, than what has been here described.

The best description I can give of its essential aim, so far as I have seen the processes (which were tentative and initial), is this. The masses represented by filled bookcases are set one in front of another; and, in order that access may be had as it is required, they are set upon trams inserted in the floor (which must be a strong one) and wheeled off and on as occasion requires.

The idea of the society of books is in a case of this kind abandoned. But even on this there is something to say. Neither all men nor all books are equally sociable. For my part I find but little sociability in a huge wall of Hansards, or (tho a great improvement) in the *Gentleman's Magazine*, in the *Annual Registers*, in the *Edinburgh* and *Quarterly Reviews*, or in the vast ranges of volumes which represent pamphlets innumerable. Yet each of these and other like items variously present to us the admissible, or the valuable, or the indispensable. Clearly these masses, and such as these, ought to be selected first for what I will not scruple to call interment. It is a burial; one, however, to which the process of cremation will never of set

purpose be applied. The word I have used is dreadful; but also dreadful is the thing. To have our dear old friends stowed away in catacombs, or like the wine-bottles in bins: the simile is surely lawful until the use of that commodity shall have been prohibited by the growing movement of the time. But however we may gild the case by a cheering illustration, or by the remembrance that the provision is one called for only by our excess of wealth, it can hardly be contemplated without a shudder at a process so repulsive applied to the best beloved among inanimate objects.

It may be that the gloomy perspective I am now opening exists for great public libraries alone. But public libraries are multiplying fast, and private libraries are aspiring to public dimensions. It may be hoped that for a long time to come no grave difficulties will arise in regard to private libraries, meant for the ordinary use of that great majority of readers who read only for recreation or for general improvement. But when study, research, authorship, come into view, when the history of that and of inquiry in each of its branches, or in any considerable number of them, has to be presented, the necessities of the case are terribly widened. Chess is a specialty and a narrow one. But I recollect a statement in the *Quarterly Review*, years back, that there might be formed a library of twelve hundred volumes upon chess. I think my deceased friend, Mr. Alfred Denison, collected between two and three thousand upon angling. Of living Englishmen perhaps Lord Acton is the most effective and retentive reader; and for his own purposes he has gathered a library of not less, I believe, than 100,000 volumes.

Undoubtedly the idea of book-cemeteries such as I have supposed is very formidable. It should be kept within the limits of the dire necessity, which has evoked it from the underworld into the haunts of living men. But it will have to be faced, and faced perhaps oftener than might be supposed. And the artist needed for the constructions it requires will not be so much a librarian as a warehouseman.

But if we are to have cemeteries, they ought to receive as many bodies as possible. The condemned will live ordinarily in pitch darkness, yet so that when wanted, they may be called into the light. Asking myself how this can most effectively be done, I have arrived at the conclusion that nearly two-thirds, or say three-fifths, of the whole cubic contents of a properly constructed apartment may be made a nearly solid mass of books:

a vast economy which, so far as it is applied, would probably quadruple or quintuple the efficiency of our repositories as to contents, and prevent the population of Great Britain from being extruded some centuries hence into the surrounding waters by the exorbitant dimensions of their own libraries.

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